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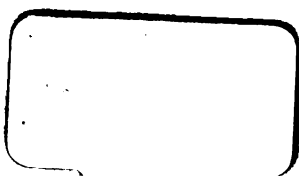
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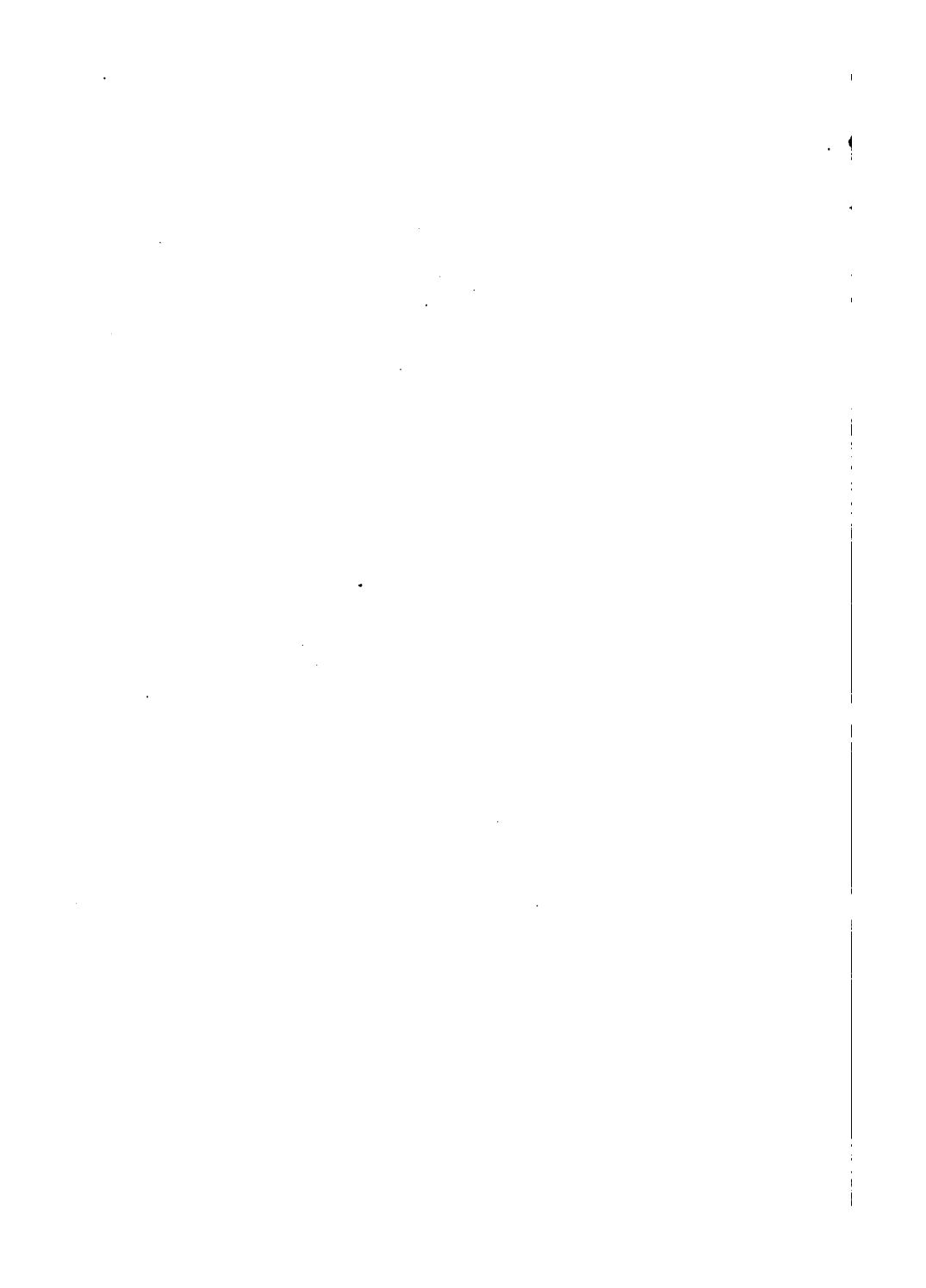
IDEAS
TOWARDS THE ESTABLISHMENT
OF THE
RUDIMENTS OF A SCIENCE
OF
NATURAL PSYCHOLOGY

PART I.

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P R E F A C E.

It is a long standing custom for unknown or inexperienced Authors to preface their productions with an apology. In many cases such preface is superfluous, but in the present instance the Author feels it due to himself to state that this brochure was written, a few pages once a week, the subject rarely entering his mind during the intervening time. It is consequently rather a series of loose thoughts than a consecutive argument.

The physical sciences only occasionally come into casual collision with religious opinion ; Psychology, to be of any practical value, must investigate the origin, and discuss the truth, of the ideas which constitute the basis of all law and morality ; and in this point of view a science of Psychology which does not grasp the whole subject of religion, resembles an astronomy ignoring the influence of the sun. There may be doubts as to how far free discussion ought to be allowed, but nothing, not even angry controversy, can be much worse than a stagnation of fixed ideas which sets some men up on a pinnacle of self-conceit as the only receptacles of truth, leaving daily increasing numbers in the darkness of doubt and disbelief.

If we had a few men of infallible reasoning powers, and a great mass of mankind willing, without exercising their own judgment, to accept as true whatever might be promulgated by the superior few, discussion would be needless, and all mankind might live in harmony. But we have neither the infallible few nor the acquiescing multitude.

An earnest and eloquent man can always carry away the minds of many others into an enthusiasm, and cause them to believe that what he teaches them is true; but the time is passing away in which any man can cause others to accept a dogma by the mere authoratative assertion of it, and we are approaching a time when men who are perfectly orthodox, but neither earnest nor eloquent, will have few believing followers unless they can give "a reason for the faith that is in them"; and when such reasons will be of little avail unless they can be substantiated in the face of full, free, and temperate discussion.

That many errors in politics, supported by ancient enthusiasms, have been dissipated by free discussion, the events of our own times amply prove. That other errors in politics, and in other subjects, may still continue to be so supported, and may ultimately be dissipated by the same means, to the great advantage of the community, is at least within the limits of possibility, and consistent with past experience.

RUDIMENTS OF NATURAL PSYCHOLOGY.

CHAPTER I.

MATTER, FORCE, AND MIND.

IN Mechanical Science, matter is defined as being *inert*. That is, as not moving otherwise than as it is moved by some power or force external to itself.

But we have no experience of matter existing in a state of absolute rest ; and even that state of relative repose which constitutes mechanical inertia, implies the continuous operation of active causes. In order, therefore, to account for the existing order of things, and to explain the incessant activity of nature, we assume the existence of various *Forces*—as *Gravitation*, *Chemical Affinity*, *Heat*, *Electricity*, and the like—by which forces we conceive an inert substratum of matter to be moved or to resist motion.

The operations of these assumed forces, constitute the *Laws of Nature*; and although it may be that nature has but one law, or motive power, and that these forces are but so many varieties or intensities of motion, yet, if that were proved, we should not the less require the same number of names to express the different kinds of motion. Light may be only a higher intensity of that motion which we call heat; but there are differences in the phenomena of heat and light which render it absolutely necessary that we should have words whereby to distinguish the one from the other. We are under the like necessity in regard to all other forces of nature.

We are conscious that there exists within ourselves a faculty of will, purpose, and design, by which we can govern the motions of our own limbs, can adapt means to an end, and can, to a limited extent, control some of the operations of external nature, and harmonize our existence with the conditions by which we may be surrounded. This internal, discriminating, and directing power, we term *mind* or *intelligence*. The study of this power is the province of *Psychology*.

In the physical sciences, *knowledge* becomes *power*, by revealing to us—1st, the source or mode of evolution; and 2nd, the *laws* which regulate the activity of those forces by which natural phenomena are controlled. Thus, through knowing—1st, how heat may be generated; 2nd, how heat may be concentrated and controlled; and 3rd, how it operates upon various substances; our *knowledge* of heat has become a great and useful *power*.

Psycheal knowledge will, in like manner, become a

useful power, when it gives the intellect such an understanding of the source of its own evolution, and of the laws of its own activity, as may be practically applied to control and cultivate its own development, so as to promote the moral elevation of mankind, and to harmonize the social and political relations of communities.

The possibility of this result involves the assumption that psycheal power has, like the physical forces of nature, a source of evolution and definite laws of action ; that its force may be quantitatively increased and qualitatively modified, so as to produce those higher and better results which are desired. We cannot assume this ; but it is open to us to enquire whether such is the fact or not.

The pride of intellect revolts against the idea that there is any intimate or necessary connection between mind and matter. We feel a difficulty in admitting that there can be any analogy between mental activity and the physical forces of nature. Heat, light, and electricity, have no self control, no voluntary or self derived increase of power, no persistent individuality. Natural forces are evolved during certain atomic changes of matter ; when evolved, the force operates according to fixed mechanical laws ; and when the antecedent atomic changes cease, the force ceases to be evolved. But we seem to feel within ourselves that our mind and our ideas have an inception and a persistent existence not attributable, like heat or light, to atomic motions of matter ; that mind has a power of self control and of voluntary increase ;

that is to say, by voluntarily seeking after new ideas we can increase the power of our intellect ; and we also feel that there is a permanent identity and individuality of existence which cannot be attributed to heat, electricity, or other forces of nature. If, however, we were to commence our study of Psychology by assuming upon these, or any similar grounds, that there is a distinct line of demarcation between the physical and the psyecheal, the natural and the spiritual, and that the psyecheal power does not exist in, nor can be evolved out of nature, we should diverge from every true method of scientific enquiry by basing our arguments upon a negative assertion, the truth of which does not admit of proof. An hypothesis may be a useful aid towards the discovery of truth, but to commence our researches by shutting ourselves up within the limits of a negative assertion, would be nothing better than wilfully allowing our reason to be blinded by a prejudice.

Although the three words, *Matter*, *Force*, and *Mind*, convey three distinct ideas, susceptible of distinct consideration by the understanding, it does not necessarily follow that the three words represent three distinct forms of objective existence. In our mind, a planet and its orbit may constitute two distinct ideas : we may form abstract ideas respecting the orbit and the motion, or of the planet itself, as a body, independent of its motion ; but the only objective substratum of these ideas is a body in motion ; and the true definition of a planet involves the two ideas of body and motion. So in relation to matter and the forces of nature, our actual know-

ledge is not a perception of two distinct forms of objective existence, as matter *and* motion, or of matter and something by which it is moved, but simply of matter moving and passing into new conditions or new static relations. Thus when oxygen and hydrogen unite to form water, the chemical affinity, by force of which the union is effected, is not a thing or objective existence separable from the substances themselves; it is essentially inherent, and inseparably involved in the existence of the substances. Without their several chemical affinities, oxygen would not be oxygen; hydrogen would not be hydrogen. An atom of oxygen and all those attributes and affinities which give it efficacy in producing any phenomenon of nature, constitute but one objective existence. And the same with regard to every other substance. We cannot, either in thought or in fact, divest any substance of its natural forces, neither can we conceive attraction, affinity, or and other natural force or motion as existing otherwise than as a condition or property of matter.

We do not know what matter is *per se*; we cannot penetrate the *cause*, we can only grossly observe the *method* of its motions; that is to say the *laws* by which its motions are controlled. These laws are identical with the *forces* of nature. The *law* of chemical affinity is only the method in which the force of chemical affinity operates; and the *force* of chemical affinity is not an objective existence distinct from matter, but a method or habit of action inherent in certain forms of matter; the matter and the force constituting, so far as human reason can penetrate, one indivisible and indestructible unity.

The substance *oxygen* is not known to us as an inert substance destitute of qualities or forces. On the contrary, it is only known to us by means of those qualities or forces through which, under the same conditions, it invariably behaves itself in the same manner towards other substances; all of which other substances are only known to us, in like manner, through their several properties or habits of action. And when oxygen, through combination with iron or other substances, not only becomes mechanically inert, but also apparently loses its active qualities or forces, it is not, in reality, in the least degree changed; the force of chemical affinity, through which the existing static condition was produced, is equally necessary to and equally active during every instant of the continuance of that condition. The atomic elements of the oxide of iron being held together by the continuous activity of a force which must be counteracted by a stronger force before the union can be dissolved. It is the same through all known nature; every substance continues to be what it is, through the continued operation of the forces inherent in the elements of which the substance is composed.

All our knowledge of natural forces, therefore, resolves itself into a knowledge of motions of matter, and static conditions of matter resulting from such motions; the static conditions involving the continued operation of the forces by which those conditions were produced; neither do we know any physical cause of motion or change of condition, other than those forces which constitute the inherent qualities of matter, and which

we cannot conceive as having any objective existence distinct from matter. If we study *forces*, we study the qualities or properties of matter; if we study *matter*, we can study only those qualities or properties which we call *forces*. A description of any element or substance resolves itself into a definition of the forces appertaining to it, and the definition of any force resolves itself into a description of the modes of activity appertaining to certain forms of matter. For all purposes of practical investigation, therefore, matter and force are one and the same thing. Force is an existing condition of matter in the same sense as motion is an existent condition of a planet. We cannot penetrate final causes to explain how matter was endowed with force; our faculties only enable us to study the existing condition in which matter and force are identified.

But when we come to consider the psychical element, we appear to have before us something of an altogether different nature. It seems obvious to our perception that our mind or will has, through our bodily organization, a power over the material elements of nature, of a different kind to that which one material element of nature has over another.

The forces of nature are invariable in their operation and inevitable in their results. Given the conditions, we can predict the result. But we feel, or think we feel, within ourselves, a power to elect what we shall do under any given conditions; a power to act or to refrain from acting, as our reason, judgment, and voluntary will may incline us. There is also a consciousness,

knowledge, and intention appertaining to our thoughts and actions, which we do not perceive to appertain to the forces of nature or the motions of matter.

These phenomena may appear to remove psychical power from all analogy to the physical forces. But although the *laws* of physical nature are simple and definite, the *phenomena* of nature are often exceedingly complex, through the complexity of the conditions under which those laws operate. We can only truly predict the result when we truly know the conditions. The human will might be subject to a law as definite as that of gravitation; yet, through the complexity of the conditions, internal and external, by which it is liable to be influenced, its operation might appear to be exceedingly unstable and inscrutable. In fact, that mind operates according to some kind of fixed law, can hardly be doubted. We are guided by the assumption that there is some such law whenever we form an opinion as to what will be the state of a man's mind or will under any given circumstances; and if we have any doubt, we feel that the doubt arises from our not fully and truly knowing, either the condition of the man's mind, or the whole of the external circumstances by which it will be affected.

Consciousness may or may not be a necessary condition of psychical power. Heat intensified produces light; light intensified gives out vivifying actinic rays. But heat has a wide spread and continuous efficacy in nature (as for instance in our own body), in degrees far below the emission of any visual ray of light. So

psycheal power may have a continuous operation in nature below the point of consciousness or active will.

It is important that we should know the truth in relation to the evolutions and functions of psycheal power; for, if that power be not a part of nature, and have no other law of activity than such as a man may discover by studying the ratiocinations of his own mind, then the many well-known writers on mental and moral philosophy have so far exhausted the subject, that little more remains to be known. But if, on the other hand, the instincts and volitions of animal life, and the intellect of man, be but higher developments of a power pervading all nature, and perpetually operating in correlation with all other natural forces, in sustaining the order and harmony of creation, and in developing the variety and beauty of created things, then we have before us an open field of enquiry;—a field which has, to some extent, been entered upon, but of which the surface has scarcely yet been broken by the plough of scientific investigation, and which will require the work of many minds to reap the full harvest.

If we ask how those large masses of useful and practical knowledge, termed scientific, have been accumulated, we will find that it has been simply by a study of facts. Lengthy and learned dissertations have been written concerning *methods* of enquiry; but there is one requisite antecedent to all *methods*: a diligent and unprejudiced collection and colligation of *facts*. One method of enquiry may be better than another, and one man may be more skilful than another in dealing with facts, but,

positive science admitting no other basis than that of facts, there can be no other source of scientific knowledge than facts; nor any other scientific truth than such as is logically deduced from facts. If our mental vision be obscured by a prejudice, or our logic be fettered by the idea that the conclusion to be arrived at must be in accordance with some previously conceived *opinion*, we are not in the right path for arriving at the truth. And if we commence our study of Psychology by assuming to ourselves, or for some part of ourselves, an origin and a law of existence distinct from nature, and independent of the laws of nature, we should be able logically to justify that assumption, not by an idea, a sentiment, or even by the universal belief of all mankind, but by an appeal to facts.

If we plead the limits of our capacity as an excuse for not being able to unravel the whole mystery, so as to distinguish all those phenomena of our existence which are natural from those which are not natural, we ought at least to be able to point out some phenomena in regard to which we might positively affirm, that such phenomena neither arise out of nature nor are dependent upon natural causes for their development.

In our own body, the psychical faculty is dependent upon the physical organs of sensation for the reception of its ideas, and it can effectuate nothing without the continued support of the physical forces of nature. Let us consider a man engaged upon some great work of art or of mechanical skill. What is the efficacy of the man's psychical faculty in relation to that work? As regards

conception or design, it is the active and governing power; but as regards the actual execution, there is much of which he may have no knowledge, and over which he has no direct control. There are other psychical agencies within him operating even more actively than that of which he is conscious, and which he calls his own mind or intellect. As he works, there is within his body a continual motion of thousands of muscles, muscles of posture, of manipulation, of vision, of respiration, and of circulation. Every motion of every muscle involves, as its necessary antecedent, certain molecular motions of the *cells* or vital atoms of which the muscles and the nerves are composed; and these again are dependent upon the incessant activity, according to unvarying laws, of countless millions of atoms of matter, working day and night in the sustenance and renovation of his bodily fabric; so that every minute while the man is at work, there occur within him innumerable movements and changes of which he is wholly unconscious, and over which his mind has no immediate control.

If psychical power be necessary to the production of the work of skill, upon which the man is engaged, must it not also, and much more, be operative in rearing and sustaining the wonderfully complex organization of his own frame, and in the construction of that exquisite mechanism by which the mind, unconscious of the method, is enabled to control the motions of the hand? The psychical power operating in the man independent of his consciousness infinitely surpasses in design, in skill, and in execution, that of which he is conscious.

Chemical analysis informs us that the complex and perfect organization of the human frame is composed of the commonest elements, and is built up and held together through the agency of the most simple and elementary forces of nature. Should carbon and oxygen cease to give out heat by their union, the chill of death would forthwith overtake us. Should oxygen, hydrogen, carbon, or nitrogen, lose any of their several natural affinities, our body would dissipate in vapour or crumble into dust.

If psychical power be necessary to the conception and construction of a watch as a whole, it is also necessary not only for the contrivance of the most delicate and difficult parts, but also for the most simple ; because every part must have its proper form and dimensions so as to fit into its proper place. Creation is a whole in which the most simple laws and phenomena are the necessary antecedents to the most complex productions. A change in the operation of any known natural force would destroy the whole existing scheme of nature and change the aspect of every existing substance or thing. If the psychical power operate any where in nature, it is equally certain that it operates everywhere, pervading the whole. And that not merely in the same sense as a work of human hands may be said to exhibit evidences of human ingenuity, but in the sense of an omnipresent and incessant activity, persistently operating in or upon every atom of matter in the universe.

Some of the above remarks may appear superfluous, it being already admitted that there are evidences of

design and of a sustaining psychical power even in the most elementary operations of nature. But this is a truth which admits of being accepted in different senses.

It is a matter of religious faith with many to believe that the Omnipotent Creator personally pervading all space, active alike in the organic and the inorganic works of nature, from the remotest heavens to the centre of every sun and every planet, by His own free will and perpetual agency, and as it were by His own finger, moves each individual atom of matter to its destination and holds it there at His discretion ; consciously, and with forethought, for His own eternal purpose, forming every crystal which sleeps unseen in the bowels of the earth, placing every grain of sand where it rests upon the sea-shore, building up atom by atom and cell by cell every blade of grass, and ruling, not by law, but by His own ever present conscious intelligence and activity, the natural functions, instincts, and actions of every animalcule, every insect, and every beast, bird, or fish on the face of this and every other habitable world in creation.

Another construction, which accords better with the Mosaic account of creation, and with other ancient theological systems, is, that matter, at some period of its existence, was endowed with those powers and properties by which it became capable of developing the existing order of things.

It is open to any one to deny that there is any active power or force in matter, and to affirm that all the effects which are attributed to natural forces are due to the volition and continued personal agency of the Deity.

It may be impossible to prove the contrary. But, on the other hand, if we feel ourselves compelled to believe that there are laws of nature, it is open to us also to believe that the power which created matter and breathed vitality into chaotic elements, could as easily have endowed those elements with a psyeal, as with a thermal, an electric, or a chemical force.

But, in the present stage of enquiry, theological views have no bearing upon the question. Our ideas, whether they be true or false, cannot vary the facts with which we have to deal. It is obvious that there is an all-pervading psyeal influence persistently operating through all nature. If that influence operate with the same constancy and unvarying regularity of method which we attribute to the forces or laws of nature, then those who take a different view may study it in the same manner as we study any law or force of nature; theological ideas neither preventing nor promoting our attainment of the truth as regards those actual facts of creation which our senses and reason enable us to investigate.

When a chemist, adding an acid to aniline, produces a beautiful coloring matter, countless millions of atoms of matter are put in motion, and pass into new combinations, forming an almost inscrutably complex product. Now what concerns the chemist, as a chemist, is not the theology of this complex operation, but the fact that whenever he combines the like ingredients, under the same thermal and other requisite conditions, he can rely upon producing another supply of the same beautiful

coloring matter. In all his manufacturing operations, he finds himself limited in his proportions and his methods by facts and laws of nature, which he cannot disregard without prejudice to the results. A theological stand point might, in a certain sense, affect his view of the facts, but it could not alter the facts themselves, nor give him any increase of power or skill in dealing with them. To be successful, his rules of action must be derived from laws of nature, which are the same in all places, at all times, and among all peoples, irrespective of any phase of human faith.

If the psycheal power of man be only a special development of the same power pervading all nature, then, by studying the function of that power in nature generally, and in human nature particularly, we might hope, upon the basis of facts, to arrive at some standard of moral and political truth, and some rules of action by which our individual life, our social relations, and our political laws might be improved. And although we cannot doubt that many ideas arrived at by such a process would correspond with many already arrived at by experience, and adopted by mankind generally; yet it cannot be denied that we have need of more light upon those important subjects; and if the first efforts towards a natural science of psychology should do no more than bring old ideas more clearly and more forcibly to view, by grounding them on a practical basis, some good might ensue, leaving more to be hoped for from further efforts.

But it is obvious that in this kind of research, a

theological stand point would be of no more utility to the psychologist than to the chemist or the astronomer. The psychologist and the preacher might enunciate many moral truths in common; on some points they might differ; but whether they agree, or whether they differ, they arrive at their conclusions in a different way, and from a totally different basis.

CHAPTER II.

THE CORRELATION OF FORCES.

WHEN we have seen several mills or machines, one of which is moved by steam power, another by a water wheel, another by the wind, and another by a horse, we appear to have before us so many distinct sources of mechanical power. But a little reflection shews us that there is one element necessary to the whole, viz., heat. Heat raises the steam; heat evaporates the water of the ocean to form the running stream; it is rarefaction of the atmosphere by heat in one place which produces wind in another place; and without heat the horse would have no muscular power; for when a certain kind of slow combustion ceases in the body, its muscular power ceases instantaneously.

When we have a galvanic battery properly arranged, but the connecting wires not yet brought into contact, there is no action going on, the apparatus and materials being in a state of repose. When we bring the connecting wires into contact, the same state of repose apparently continues, so that a person ignorant of electricity would conceive that the contact of the wires had not affected the condition of the apparatus. The operator, however, knows that a chemical action has commenced between

the acidulous liquid and the zinc plates, and that a subtle, but amazingly active force has come into operation, racing with lightning speed through the wires, the liquid, and the metallic plates. By interposing certain substances or additional apparatus, he can obtain from this current of electric force the most intense heat, or one of the purest and most brilliant of artificial lights. He can make it produce metals of silvery lustre from common soda or potass, or convey metals from one surface to another—gilding a vase, or producing an exact facsimile of a medallion or of a page of printing type. Overpowering the force of chemical affinity, this current will decompose water into its component gases; or will perform the reverse operation; exploding the mingled gases, it will reproduce the water. Overpowering the human will, it can produce involuntary and uncontrollable muscular contortions; or, directed by human skill, it can paralyze the nerve of an aching tooth, or revive the vitality of a paralyzed limb. It leaves mankind to form their own ideas concerning itself, but it enables two men to exchange their ideas at a distance of 1000 miles as quickly as the words can be written down. By the interposition of some coils of covered wire, it will convert a bar of iron into a powerful magnet, giving us a mechanical force to work a little machine, by which, from stereotype plates formed through its own agency, it will print off a full account of the processes through which all these and many other wonderful feats are accomplished.

We have thus electricity, heat, light, chemical

affinity, magnetism, and muscular and mechanical force as readily convertible into each other as an alternating motion is convertible into a rotary, or a rotary into an alternating motion. And this conversion of forces is practicable, whatever may be the force with which we commence. The action of chemical affinity in the process of combustion, generates the force of heat ; from heat, through any elastic vapour, we have mechanical force ; mechanical force rotating a magnet, gives us an electric current, by which we may produce the same phenomena as by a galvanic battery. Commencing at any one point in the circle, we have only to concentrate and intensify, to diffuse and moderate, or in some way to modify the action of any one force, in order to produce some other ; and we can thus proceed through the whole circle of all those natural forces which we have discovered the methods of evolving.

Whether we utilize natural forces for our own purposes, or whether we observe the spontaneous activity of nature, the last point to which we can trace any force, and the only source in nature from which we can perceive any force to be evolved, is some atomic motion of matter. When we place the fuel in the furnace and so arrange the apparatus as to create a draught to concentrate and intensify the heat; we give oxygen free access to carbon under conditions favorable to the operation of their mutual affinities, and thus form a reservoir of intense chemical action from which we obtain mechanical force. In this, as in every other instance of force, naturally or artificially evolved, we trace the force to originate in

atomic motions of matter, due to the inherent qualities or mutual affinities of the substances themselves. Man may contrive and construct the apparatus ; but nature does all the work.

A stream of water will turn a wheel which may supply force to grind corn, to spin thread, to roll iron into rails, or to work a magnetic telegraph or an electrotyping apparatus. There may be a reservoir in which the water may be collected during the night for use during the day. The water in the reservoir appears to be in a state of powerless repose ; more dead asleep than the tired workmen of the mill ; but the force is all there and continuously operating. Held fast within the banks of the reservoir, the mass seems placid and at rest ; but throughout the whole, particle is pressing upon particle, striving after an onward flow. You have only to open the sluice, the pent up force has vent, the wheel goes round and the busy course of work again commences in the mill. And while the water, having done its work, wends its way to the river and through the river to the ocean, there is another stream of water flowing from the ocean, through the atmosphere, to fall upon the mountain, to form the stream, and again to fill the reservoir.

Nature, like our mill, has her overflowing stream of power, and her reservoirs of pent-up force, from which she is continually teeming forth her works of utility or beauty. We cannot physically perceive the whirling race of atoms which is the fountain of her power, nor even mentally comprehend the cause of that mysterious

innate pressure of atomic force which urges the race continually to flow on; but we can see something of the mechanism of the mill, and much of its manifold productions. We see the rain descend in fertilising showers; we see the face of the earth instinct with animal life, and clothed with verdure for the support of that life; we know that bright sparkling crystals are ever forming in the dark chambers of the earth, and we have reason to believe that the whole scene of our globe, down to its very centre, is a mass of incessant activity; we see perpetual conflicts resulting in perpetual harmony, destruction perpetually tending to reproduction, in an ascending scale, in every step of which we find increasing complexity of construction and ever-expanding beauty of workmanship; a vast laboratory, in which we cannot conceive the destruction of any thing otherwise than as the beginning of something new.

If we work a galvanic battery continuously, there will come a time when its energy declines. By adding more acid, and by brightening up the connections of our wires, we may partially revive its force; but from day to day there is a gradual decline of energy. The little spark which denotes its vitality becomes more and more feeble, until at length it is no longer visible, even in the dark. Our galvanic battery, once so like a living thing, is now dead and powerless.

If we now take out the plates and examine the apparatus, we may find two phenomena, (1) at the bottom of the trough is a mass of beautiful white crystals; (2) if copper plates have been used, we may

find, upon one or more of them, a skeleton tracing of vegetation, apparently formed by the deposition of particles of carbon, like a fine crayon or pencil drawing. The author has seen one of these in which the stem, the leaf-stalks, and ribs and fibrous network of every leaf were traced, with a minuteness and perfection which he has never seen excelled in any fossil impression, or prepared skeleton of a plant. One difference between this tracing and a copy from nature was, that the position of the leaves on each side of the stem, and the ribs and network of the leaves themselves, were more exactly symmetrical than is generally found in actual vegetation. It is rather a logical deduction than a mere conjecture, that the same force by which particles of carbon were arranged so as to form the outline of a plant might, under suitable conditions, have formed the plant itself. Thus the expiring energies of the electric current leave behind them traces of a new birth.

The white crystals found in the trough may be some thousands in number, and varying considerably in dimensions. But whether small or large, they are all of the same regular geometrical form.

If it were desired to build up some millions of bricks in the form of a many-sided pyramidal crystal, two things would be necessary, in addition to the bricks. Psychical faculty to design, and physical force to construct. There must first be an idea, design, and intention to build such a pyramid. Supposing the bricks to be already made, there must be human hands and physical power to place them in position ; and although the work

might be facilitated by the bricks being made of a certain form, yet every man engaged in placing them must exercise a certain amount of psychical power or skill to place each brick in its proper position so as to keep the lines and angles of the building true, and to constitute at last a perfect and homogeneous structure. And the psychical difficulty of this undertaking would be very much increased if it were made a positive injunction that, from the first hundred bricks up to the last one, the structure should always present precisely the same form; so that, at whatever moment of time the work might be stopped, the building, although smaller in size, would be perfect in form, according to the original design.

The substance from which our white crystals are formed is suspended in a state of solution in the liquid. In the formation of a crystal, thousands of atoms instantaneously aggregate themselves in geometric order; and every instant, while the process is going on, countless myriads of atoms are simultaneously taking their places, with such regularity that, at whatever moment we interrupt the process, we find each crystal, small or large, perfect in its every line and angle.

When we perceive certain phenomena, we assert the activity of certain forces, the operation of which we know to be necessary to the production of those phenomena. We assert, for instance, that the action of the force called *chemical affinity*, is necessary to the production of sulphate of zinc, the substance forming the white crystals above referred to. For if sulphur did not

chemically combine with oxygen, there could be no sulphuric acid ; and if sulphuric acid did not chemically combine with zinc, or oxide of zinc, there could be no sulphate of zinc.

The formation of a regular geometrical figure exhibits *design* (using the word in an *æsthetic* sense), and the formation of a crystal of sulphate of zinc, exhibits the operation of psychical power as certainly, and in the same sense, as the formation of the substance sulphate of zinc exhibits the operation of chemical affinity.

The formation of regular crystals is a persistent quality, property, or power, of the sulphate of zinc. If we dissolve the crystals any number of times, similar crystals will always, under appropriate conditions, be formed again; the only difference being, that if there were any impurities in the first, those impurities will be gradually eliminated, and the lastly-formed crystals will be purer and brighter than the first.

The bee, through a psychical faculty, termed instinct, constructs hexagonal cells. A number of bees, having the same instinct, or innate idea, combine to build hexagonal cells. Atoms of sulphate of zinc come into existence with the innate propensity to form themselves into regular crystals of one uniform type, myriads of atoms simultaneously combining for that purpose. If the work be hurried by too speedy evaporation of the fluid, the crystals are small, confused, and imperfect ; if more time be allowed, by a slow evaporation, the crystals are large and beautifully formed. In this combination of atoms to construct regular crystals, there is obviously

a psycheal element at work ; and if so, where is it ? Is it inherent in the material substance, or is it something operating upon each individual atom from without ? Wherever the one exists, there is the other also. The psycheal element which gives the faculty of forming regular crystals, is an essential part of the nature of the substance from the first inception of its existence, and continues with it to the end ; that is, until the substance itself is chemically decomposed ; dormant or sleeping while the crystal is in its solid state, but awakening up again into lively activity when, by diffusion in water, the individual atoms become free to follow their instinct of crystallization.

And when we have decomposed the crystallizable substance, we have destroyed nothing. The same elementary substances may, by virtue of their inherent qualities, be again recombined into the same crystallizable substances, each atom of which will have the same psycheal element or instinct of crystallization in its second existence as in its first.

To construct a pyramid of bricks, we must first have bricks. To dig the clay and to make the bricks requires a combination of psycheal and physical powers. So in crystallization, the psycheal power must co-operate with the physical force of atomic combination in order to produce atoms having the configuration and properties requisite for the spontaneous production of regular crystals. Thus tracing nature down to the most simple and elementary of her operations, we find that the psycheal power is not only in correlation with the

physical forces, but that its activity is a necessary antecedent to the development of those forces.

The ideas of law, order, harmony and organization, involve the idea of psycheal activity, as rationally and as logically as the idea of a chemical compound involves the idea of chemical affinity. Seeing, then, that from the most simple operations of the most simple of natural forces, up to the production of the most complex of natural objects, there is a continuous exhibition of law, order, harmony and organization; how can we logically get away from the conclusion that the facts of nature prove the psycheal power to be antecedent to, and continuously operating in correlation with, the physical forces which constitute the laws of nature.

CHAPTER III.

MIND IN MAN AND MIND IN NATURE.

In the vegetable creation, we find rays of heat and light reproducing combustible matter.

And we find that the light produced by the combustion of vegetable substances, obeys the same laws of motion, of transmission, of reflection, and of refraction, as the parent light from which it derives its origin. It has not the vivifying, actinic force of the rays of the sun; but that is attributable to deficiency of intensity, not to a difference of nature.

This reproduction is effected by a gradual development. First comes the lichen, scarcely at all combustible; then the moss, but little more so; then the peat bog, and the rank vegetation to be pressed into coal; and the big forest tree, yielding abundance of inflammable matter.

In like manner, the psycheal power, pervading all nature, produces organizations to reproduce itself; first, in the dull monotonous instincts of lower animal life, and ultimately culminating, through many gradations, in the mind of the intelligent man, capable of penetrating many of the mysterious activities of its parental source, of humbly admiring, and feebly, at a great distance, imitating the works of creative power.

It may be that there is not a particle of wood, of wax, or of oil in the substance of the orb which illuminates and vivifies the surface of our earth; yet the burning faggot, the candle, and the lamp, indubitably eliminate the same force as the sun itself. The identity is not in the substance eliminating, but in the force eliminated.

If man bear the image of the Creator, it is not in physical form—in flesh, or blood, or nerve, or brain—not in the material basis sustaining, but in the power emanating. And although the psychical power of man be infinitely less in comparison to the psychical power of Creation than the light of a feeble oil lamp is to the light of the sun, yet the analogies of nature lead us to the surmise that, in so far as the one can in any way be compared to the other, the power being identical, the methods of its activity will be found to be identical also.

In comparing the operation of the psychical power in man with that operating in nature, we will find both analogies and identities in their modes of activity.

In contrivances and inventions, such as galvanic batteries and telegraphs, spinning machinery and locomotive engines, we have powers of design and the adaption of means to ends; accomplishing, in a rude way, purposes which are accomplished in nature through contrivances or mechanisms infinitely more subtle and more refined; but in these developments of human ingenuity, there is no creative power. The ideas constituting the foundations of our conceptions or inventions,

are derived from sensual perceptions of things or facts already existing ; the materials with or upon which our hands operate, are already provided for us in nature ; and we find ourselves bound down and limited in every direction by natural forces which we did not create, and over which we have no further power than that of partially adapting their development to some special purpose of our own.

Even that which we call the creative genius of the poet, the artist, or the musician, is equally dependent upon sensual perceptions for the materials upon which it operates, and must be equally obedient to existing laws of nature in order to insure beauty and harmony in the result of its labours.

Genius is but a quick perception of those harmonies of nature out of which all physical and moral beauty arises. The psyeal spark having a more intense activity in the mind of one man than in that of another, the brighter glow of his own internal nature throws a brighter light upon all that is external, enabling him to interpret to others that which they cannot clearly read for themselves.

The poet may intensify the good or the evil, may bring to view new beauties in the beautiful, or may add fresh horrors to the deformed ; his genius may delight our fancy by a vivid play of lights and shades and ever varying contrasts ; he may stir up all the forces of our moral nature, as the operator with the galvanic battery brings forth the forces of material nature ; but in the one case as in the other, the man only deals with materials

already created to his hand, and can bring forth no forces other than those latent in the minds or materials upon which he operates.

Yet, although in these human rays of psyeal power we cannot detect the actinic creative energy which brings matter and force into existence, there is nevertheless a faculty of design, of adapting means to ends, and a control over the development of natural forces which appertain to no other power than the psyeal. And however feeble the psyeal power of the scientific inventor, the artist, or the poet, may be in comparison with the great organizing power of nature, it is still the same power. The fire-fly emits but a feeble spark of light, yet it is light, following the same optical laws as the light of the sun.

Amid the varied exercises of the human mind, the formation of an abstract or pure science affords the nearest approach to a mode of activity identical with that of creative power. And if, for the sake of illustration, we conceive the mind operating, in such formation, independently of all perceptions of external things, we shall find a very close identity.

Thus the mind defines to itself the idea of a point; it decrees that the motion of a point shall constitute a line; that the motion of a line shall constitute a surface; and that the motion of a surface shall form a solid. Postulating to points, forces of attraction, and repulsion, according to fixed laws, and putting points in position and in motion at its own will, but always in accordance with the laws which it has postulated, the mind might

proceed to construct the circle, the ellipse, the hyperbola, the parabola, the spiral, and all other known or possible geometrical curves. Branching out in another direction, from its original idea of points and lines, and dealing with lines and angles according to its own self-created definitions, it might elaborate a geometry of straight lines, superficies, and solids. Starting again from the beginning, and dealing with points as numbers only; defining that one and one should be two, that two and one should be three, and so on; adopting signs and symbols to represent operations, and known or unknown quantities, it might elaborate a complete system of arithmetic and algebra. Then, interblending the science of numbers with the science of geometry, the mind might, of its own creative power, and without reference to any existing material thing, evolve a system of ideas embracing all that is known, or that can ever be known, in the science of mathematics.

Supposing one human mind to have elaborated within itself the vast number and variety of ideas comprised in all mathematical and arithmetical science, the existence of those ideas would be simply conditions of the mind conceiving them. The existence of the ideas would not involve the existence of any fact or thing other than the mind itself in which they were conceived.

And it is perfectly consistent with reason to suppose that all created things are but evolutions of the creative mind; that which we call matter being the medium through which the perpetual activity of creative psychical power becomes cognizable by our mind.

The points and units of the mathematician are impalpable entities, cognizable by mind only. By conceiving movements and aggregations of these points and units, according to certain fixed laws, the mind creates systems susceptible of an infinite number and variety of definite results. In nature we trace the same mode of procedure; and the atoms of matter constituting the basis of all material things are as far removed from our physical perceptions as the atoms and units of the mathematician. We can perceive the results of the aggregation of atoms, and we can define some of the laws of such aggregations, but we cannot arrive, either by mental conception or by physical perception, at the atom itself. We cannot penetrate nature's definition of a point. The mathematician can conceive an ideal point revolving round another point to create an ideal circle; it can conceive the revolution of the circle creating an ideal globe; but how the ideal globe could become an existing and persistent globule, or atom of matter, is beyond the power of human conception.

The process of the mathematical mind in elaborating a complex science from a limited number of simple ideas, is a process of development.

We cannot conceive that the mind, at the time of its first entering upon that course of development, would have any definite conception of the multiplicity and variety of the results into which its first simple ideas would ultimately expand; nor that it could have any pre-cognition of any one of the more complex problems which would ultimately be enunciated. The definitions,

axioms, and postulates, are obviously necessary preliminaries to the enunciation of the most simple geometrical problems; and the more simple problems are necessary preliminaries to the more complex; the mind being carried on in a process of gradual expansion of ideas, from its most simple up to its most elaborate conceptions.

Many of the facts and adaptations by which the more simple problems lead to the more complex, arise out of the definitions and axioms themselves, not by pre-conception, but by inevitable necessity, being perceived analytically, and discovered by the mind reviewing or studying its own work.

Thus the mind, having laid down its definitions of angles, and having constructed a triangle, it follows, not by pre-arrangement or pre-conception, but by inevitable necessity, that the three angles of every triangle shall be equal to two right angles; and in this discovered fact or adaptation, the mind finds a basis for an amazing amount of further development in geometrical science.

Two points issuing from the same point, repelling each other according to the squares of their distances, and both attracted in the same ratio by a third point, would describe a parabola. This mental construction of the parabola does not involve any preconception of that beautiful adaptation by which the parabolic reflector throws out a body of light in parallel rays.

Even in simple arithmetic, we discover many curious properties of numbers which it is impossible we can imagine to have been preconceived in the minds of those

who first developed that useful science. If, for instance, we take any number of figures which, being added together, amount to 9, we find that however we may place those figures, they constitute a multiple of 9; thus, from $1 + 8$ and $2 + 7$ and $6 + 3$ and $5 + 4$, we have respectively 18 and 81, 27 and 72, 63 and 36, 54 and 45, all which are divisible by 9 without remainder. Nine units, 1 1 1 1 1 1 1 1, constitute a multiple of 9; and if we take any other figures, as $6 + 2 + 1 = 9$, we find that, however we may place those figures, as 621, 612, 216, 126, &c., they constitute a multiple of 9. Again, if we multiply any number by 9, the figures constituting the product, being added together, will be either 9 or a multiple of 9. Thus, $9 \times 3 = 27$, and $2 + 7 = 9$; $6 \times 9 = 54$, and $5 + 4 = 9$; $1868 \times 9 = 16,812$, and $1 + 6 + 8 + 1 + 2 = 18$; and so on with any other figures. Again, if we take any figures which, like 16812, being added together, produce a multiple of 9, and multiply that sum by any other figure, the product will be a multiple of 9.

As regards the science of arithmetic, these facts are more curious than useful; but, in chemistry, we have a natural or positive science of numbers; and it is a remarkable coincidence, that the atomic number, or chemical equivalent of water is 9; and that while other substances have the property of forming only a limited number of definite compounds, water is the basis of an unlimited number of such compounds; every species of vegetable and animal having its own, and, in some cases, several distinctive hydro-carbonic chemical products;

there being no difference of species, either in vegetable or animal life, without a difference of such chemical products.

In the pure sciences, and in their relations to each other, we have examples shewing how the human mind, starting with one or a very few simple ideas, and laying down for itself simple laws in the form of definitions, postulates, and axioms, may enter upon a process of development producing an indefinite number of definite results, infinite in their variety, yet harmonious and consistent as a whole. Every mathematical truth is consistent and harmonious with every other mathematical truth; and the most complex problems in the most advanced mathematical science, being analyzed, lead us back, in direct lines, to the first elementary principles.

And is it not plainly written on the face of nature, that the psyeal power in creation operates in the same method? Is it not an obvious fact that the most complex objects are but aggregations and expansions of the most simple, and dependant for their existence upon the same primary elements and laws? And is there not also, from the impalpable atom, the physical point of nature, up to the most complex of natural objects, an unbroken chain of developments in which each step in advance arises out of, and rests upon, antecedent developments, in the same manner as one problem in Euclid arises out of and could not have been enunciated without others which have gone before.

As already hinted, a mathematical problem is simply a condition of the mind contemplating that problem.

There are things which, in conventional language, we term points, and lines, and circles, or squares, but a mathematical point, straight line, circle, or square, has not, nor can possibly have any existence external to the mind.

In like manner, the existence of every object and fact of nature involves the existence of creative psychical power. Where the one is, there the other is, and ever must be. Whether we contemplate a grain of sand or a planetary system, we perceive the existence and operation of those laws which constitute the unalterable definitions, axioms, and postulates of the creative mind; the cessation of creative psychical power would involve the cessation of all created things.

The mathematical mind, through its connection with a material body, and its control over material things created to its hand, has the power of perpetuating and conveying its ideas to other minds, by means of language and diagrams. Our own body is a complex and beautiful diagram, in which we can read the development of psychical creative power from its most simple axiom to its highest effort—the re-evolution of its own force. But our own mind has not within itself, and cannot comprehend that actinic force by which a psychical point becomes a concrete atom, and psychical postulates become physical laws of nature.

For the purpose of illustration, let us suppose that all existing mathematical books were destroyed, and all mathematical ideas obliterated from the human mind; and that amongst the ruins of some long buried city

there should be dug out tablets having engraved upon them diagrams of a whole system of geometry; also others with long sets of formulæ in the higher branches of algebra; but all without any letter-press description or explanation.

The minds of all learned men would be greatly exercised to discover the meaning of these curious and complex figures and symbols. The more simple-minded might set them down as a system of magic or necromancy. The divines would clearly perceive the doctrine of the trinity; they might trace the antagonistic workings of good and evil powers, and the conflicts of the soul with Satan; and in the various interblendings of triangles, squares, circles, and other figures, they might find symbols elucidating the most complex problems in theological lore. The historian might trace the rise and fall of dynasties, the conflicts of armies, and the splitting up of great nations. He would probably assure us with the greatest certainty that the algebraic tablets, if any one could but find a key to the reading of them, would disclose a reliable history of the world for some thousands of years.

Thus, various classes of men, according to what was uppermost in their minds, would be able to perceive in the newly discovered tablets something illustrating their own ideas, or confirming their own theories. And it is probable that many generations would transpire before some men, with more analytical and less imaginative minds, would begin to surmise that the diagrams were neither magical, nor theological, nor historical

emblems, but that they represented a systematic expansion of abstract ideas.

It is thus that man interprets nature. His first impulse is to impute to creative power, intentions and purposes, which being forced upon the human mind by the conditions of human existence, he considers to be attributes fundamentally essential to all psychical activity; and it is only after many generations that here and there men arise who are dissatisfied with these fanciful interpretations, and who therefore determine to study the tablets for themselves, with that simplicity of mind and freedom of thought without which it is impossible the true interpretation can ever be arrived at.

The idea of development does not necessitate the idea of the development of all things through one direct line. A circle is the most simple of curved lines, and we can conceive how, by the introduction of another distant attractive force or otherwise, the circle may be converted into an ellipse; but we can also conceive how an ellipse may be formed without the point tracing that figure having previously moved in a circle. To form the circle or the ellipse we require only points having severally a continuously active projectile, and a continuously active attracting force; but to form the parabola or the hyperbola we require also points having a mutually repellant force. We cannot, therefore, in our mathematical development, pass through the circle and the ellipse into the parabola and hyperbola; to form those curves we must begin *de novo*, with the same elements, or definitions, but bringing into operation another postulate.

Thus the mind branches out from its first elements of thought, in various directions, arriving at various results, all dependent upon first principles, yet more or less independent of each other. We may trace the same method of development in nature.

There are thousands of geometrical problems and porisms which are mere developments of psycheal activity; having no end, purpose, nor meaning in them, otherwise than as exercises of the mind, sporting in the exuberance of its own expansive powers. We see the like in nature. And there are some figures, such as the circle and the triangle, which, like water and carbon in nature, are most simple in themselves, yet so essentially necessary to the whole superstructure, that to obliterate them would, in the one case, destroy the whole fabric of geometrical science, and in the other would reduce the surface of the globe to a chaotic mass of barren metaliferous rock.

In the parallel thus slightly sketched, we have a confirmation of the universal idea that there is in the human mind a psycheal power, which, to a limited extent, is identical in its nature with the creative psycheal power; and also of the idea, strongly supported by facts, that the work of creation is a work of development; and here the parallel ends. Man can create nothing, can construct nothing, otherwise than out of materials already created to his hands. If he were suddenly blotted out from the face of the earth, the sun would still shine, the world would still move on. But if creative power were for one moment to cease its

activity, there would be nothing left. The force which causes two atoms of matter to move towards each other, is equally necessary to the continuance of their adhesion. If that force were withdrawn, all form, all substance, would vanish ; nothing would remain which the mind can form any conception of as having a material existence.

Perceiving innumerable phenomena which we term material things, our reason jumps to the conclusion that those phenomena must have a material basis apart from the psycheal power which controls the mode and duration of their existence ; we fancy that there must be atoms of matter which would be visible and palpable if only our senses were acute enough to perceive them ; and we cannot convey our ideas respecting material phenomena otherwise than in language which involves this distinction. The exigencies of human language are not, however, the guages by which our minds can fathom the mysteries of creation. Neither is it profitable, however pleasant it may be, for the human mind to expend its powers in attempting to reach heights or depths which, in the present state of our knowledge, are clearly inaccessible.

If ever we are to solve the great psycheal *pons asinorum*, it will not be by spasmodic efforts or ambitious flights of imagination, but by patiently mastering the definitions, postulates, and axioms, and attaining all other elementary knowledge necessary to the demonstration of the problem.

CHAPTER IV.

The powers of the Psycheal apparatus susceptible of expansion.— Ideas or Knowledge the nutriment by which its powers are increased.—The necessity of true ideas as to the wholesome activity of the mind, and to the development of just and permanent institutions.

CERTAIN insects, as the fire-fly, have a special organization for the evolution of light. Certain fishes, as the torpedo and the electric eel, have a special organization for the development of electricity, and can give an electric shock to animals coming in contact with them. In all animal life we find, more or less distinctly developed, a special organization for the evolution of the psycheal power by which the animal becomes conscious of its own existence, and of its relations to certain things external to its own body.

With regard to some natural forces, we must understand the method of their evolution, or how to generate them, before we can utilize their activity. Before we can get up steam, or send a telegraphic message, we must know how to generate heat and electricity; and we must also be able to construct apparatus suitable for those purposes. But even when we are able to do these things

with great perfection, there still remains a mystery which we cannot penetrate. We find that the rapid oxydation of carbon in a furnace, generates a great heat. But when we ask ourselves how or why it is that heat is evolved in the oxydation of carbon, we can only answer that it is so ; or that such is the law of nature. The fact is, we do not generate heat or electricity ; we only arrange, organize, or construct the materials and apparatus through the medium of which the latent forces of nature become active.

We cannot arrange materials, nor construct apparatus for the evolution of psychical power. To organize the most simple form of animated matter, is hopelessly beyond our skill. And the evolution of psychical power from material elements is as far, and no further, beyond our comprehension, than the evolution of heat or electricity. The evolution of heat in the process of respiration does not appear to be a mystery, because we can give a certain explanation of it consistent with other known facts and known laws of nature ; but it is, in reality, as much a mystery as the evolution of instinct or thought in nervous ganglions, or in the human brain. We can see a little farther into the secret in one case than in the other, but we cannot solve the mystery in either.

The furnace and the fuel are necessary to the production of the heat which generates the steam. The troughs, the zinc plates, and the acid, (or some other equivalent apparatus) are necessary to the production of the electric current which conveys the message. But

the furnace and the fuel are not heat; the zinc plates and battery troughs are not electricity. The atomic motions accompanying the combustion of the fuel, or the solution of zinc, may be compared to the vibration of the string of a musical instrument. The vibration of the string only causes sound by causing vibration of the atmosphere. A string vibrating *in vacuo*, causes no sound. The atomic motions accompanying the solution of zinc plates in a galvanic battery put something else in motion, which other motion produces the phenomena of electricity. We know something concerning atmospheric air, the vibration of which causes sound; we can weigh it, analyze it, or condense and confine it in a vessel; but what it is the motions of which produce electrical phenomena we know not; it is too ethereal to be grasped even by our imagination.

It is obvious that the nervous system is necessary to those perceptions which constitute the bases of our ideas—where there is no nerve there is no sensation. It is also proved by observation and experience that the brain is the organ of thought. But the nerves are not sensation; nor is the brain thought. The vital activities of the nervous tissues, like the atomic motions of the battery, put in motion something else, the activity of which constitutes sensation and ideation.

If neither reason nor imagination can carry us to a conception of what it is the activity of which causes an electric phenomenon, still less are we able to comprehend what it is the activity of which constitutes thought. In these, as in all other branches of natural knowledge, we

must, for the present, content ourselves with the study of phenomena, and the laws by which the sequences of phenomena are governed.

We are satisfied that there is a mysterious influence pervading all creation, the incessant and universal activity of which develops and sustains all natural phenomena and all natural things. We cannot comprehend the nature or essence of that which thus actuates all things, and the activity of which constitutes all material phenomena, but we can perceive that this activity develops natural objects and phenomena according to laws which, whether self created or imposed, are necessarily fixed and invariable; for the cessation or alteration of any one of the most simple of the laws of nature would involve the instant destruction of the whole existing fabric of creation. Were hydrogen, for instance, suddenly to assume a stronger affinity for two atoms of oxygen than for one, every alpine snow and every polar iceberg would become a seething flame, every ocean and every river would be a consuming fire, and every animal and every vegetable on the face of the earth would pass into a state of spontaneous combustion.

In evolving natural forces, such as heat, light, and electricity, we can by means of various apparatus and contrivances, quantitatively increase and qualitatively vary the evolution. We can produce a greater body or a greater intensity of the force, as our purposes may require. In regard to the psyecheal power, the evolution admits of almost unlimited quantitative increase, and also of considerable qualitative variation, but not,

generally, through any interference with the physical apparatus of evolution.

That apparatus is not the work of human hands, and although it is susceptible, in some degree, of improvement or deterioration, by physical means within human control, those means come within the range of medical or physiological rather than of psychological science; being the same which affect the general health of the body. Yet we shall have occasion to refer to at least one physical condition of the brain which appears to produce psychic phenomena of a very remarkable character.

If we could so far penetrate the mysteries of nature as to perceive an atom of hydrogen or oxygen, we would doubtless find every atom of each as exactly corresponding to every other atom, as all abstract ideas of one and eight correspond to all other abstract ideas of the same numbers. If the ideas of one and eight admitted of any variation, the whole science of arithmetic would be upset; there would no longer be any certainty in any calculations comprising those figures; and if some atoms of hydrogen or oxygen differed in their distinctive properties from other atoms of hydrogen and oxygen, the course of nature would be upset; there would be no certainty, order, or regularity in any of those numerous phenomena in which hydrogen and oxygen are concerned.

Throughout all nature we find the simple elements everywhere the same, and the less complex products of the interblendings of those elements, such as mineral

crystallizations, admit of scarcely any variations otherwise than in their dimensions; but when we extend our observations to more complex productions, we find such variations that no two things of the same kind are in all respects exactly similar. Thus it may be possible to find two crystals of quartz so exactly similar in form and dimensions, that we cannot discover any difference between the two; but if we go into the forest and gather ten thousand or ten million leaves of oak, although there is a general resemblance by which we can at once affirm every leaf to be a leaf of oak, yet we will not be able to find any two which, externally and internally, precisely correspond to each other. Yet, again, if we microscopically inspect, or chemically analyse the leaves, we will find them all to be constructed from precisely similar cells or tissues, to be composed of the same elementary ingredients, and that they have developed, more or less, the same special chemical products peculiar to their species.

There are similar diversities and similar identities in the organization of man; and the diversities occur to as great an extent in the organ of psycual evolution as in any other portion of our structure. Although there are certain mental faculties common to all mankind, men have not naturally, nor is it possible for human training to endow all men's minds with the same capacity, force or intensity of action.

The poet Burns had no education, nor sphere of observation beyond such as were open to other men of a similar position in life. The simple incidents, ideas

and emotions which form the elements of his poetry, are before the eyes and in the hearts of all men; but the world has seen few men with that native vigour and intensity of mental activity which enabled him to move the hearts of other men, and set him upon a pinnacle to be admired by his countrymen as long as the language in which he wrote shall endure. It would be easy to quote the names of many men, who, through a great quantitative capacity for thought, or a more intense activity of the organ of ideation, have accomplished, in science or in art, things which many other men, not having the natural capacity to accomplish, never could have been educated nor trained to accomplish. On the other hand, there are men of great natural capacity, whose mental powers are undeveloped or wasted upon trifles; doing, as it were, one horse's work with an engine of fifty horse power.

Although all minds are not susceptible of the same fulness, or the same kind of development, there is, in mankind generally, a capacity for development, and for an immense increase of power beyond that which each would attain by its own unaided natural strength alone. And the method of accomplishing this is by the aggregation of ideas; or, in other words, by the increase and diffusion of knowledge. It is the accumulation of ideas, the increase of knowledge, which exalts man individually; it is the transmission of knowledge from one generation to another which exalts one generation above another; it is knowledge and not mere physical power which enables ten men to live well where only one could gain

a scanty subsistence before ; it is knowledge which increases the fertility of the earth, and which brings to mankind pleasures above any which the most fertile soil can yield ; it is to knowledge we owe those social regulations, those laws and institutions, without which neither the fruits of the ground, nor the pleasures of intellectual culture could be peaceably enjoyed.

In order that this increase and diffusion of knowledge should have its full beneficial effect, it is necessary that the ideas of which it is composed should be true and wholesome. Ideas are the nutriment of the mind, and if the nutriment be not pure and wholesome, the mind itself cannot enjoy the full vigour of healthy activity.

True ideas are those which constitute a knowledge of facts or things, and of the actual relations of facts and things to each other and to ourselves. Although the mind can deal only with the materials presented to its view, it can deal with those materials in many ways. Sometimes it can clearly perceive that which is, and reasoning logically concerning that which it perceives, it can arrive at the truth : but sometimes it perceives imperfectly, and mingling its own conceptions with its imperfect perceptions, it arrives at false conclusions ; believing that to be true which is not true, and day by day, through all mortal life, reasoning and acting upon such beliefs. A false idea or conviction, whether self-created or imbibed, may control a man's actions and shape his destinies for life ; and living, as it were, more or less in a delusion, a kind of mental dream, he is continually liable to knocks and bruises through contact

with some stern reality of life which a more truthful mental vision might have enabled him to evade.

What is true in relation to the individual, is equally true in a general view of human affairs. The wide dissemination of any false or visionary idea, however harmless it may appear to be in itself, and even although its efficacy may at first appear to be, or may be, beneficial, is certain, sooner or later, to produce injurious results.

Concrete ideas, not having a logical foundation on any known or accessible fact, whether they be true or false, cannot possibly be proved to be true. In certain states of society, ideas having an important bearing upon the moral and religious aspect of the community may be accepted on authority, and the more readily if interblended with, or woven out of, other ideas which mankind in general accept as true. Out of ideas arise institutions, to which the people are expected to submit themselves; and at first, it may be, do willingly submit. But the ideas forming the basis of the institution admitting of doubt, sooner or later men will arise who do doubt. To doubt any of the ideas or dogmas upon which the institution is founded, is to doubt the institution; and many having become personally interested in the continuance of the institution, they will support it at all hazards; and the doubts must be suppressed, even at the cost of the lives of those who doubt. Then come persecutions, imprisonments, racks, tortures, and the burning of men and women, as a caution to others. But the human mind is not to be set at rest by such means; with the increase of knowledge the number of doubters in-

creases; therefore the increase of knowledge must be suppressed or so controlled as to subserve the purposes of the institution; and when, even by these means, the aspirations of the human mind after truth can no longer be suppressed, more vigorous measures still must be adopted; armies are equipped, countries are devastated, and human beings are slaughtered by thousands and tens of thousands. All these evils, and many others, of which millions of people now daily feel the effects, have arisen out of the fact of certain visionary and false ideas being blended with simple truths which all mankind might have peacefully accepted.

It may be that at all times, and in all countries, there will continue to be masses of men who, through ignorance and poverty, are necessitated to submit to any laws, however bad, which the more powerful may impose upon them, and who may be constrained to accept any dogmas, true or false, which authority may enforce, or which superior cunning or enthusiasm may instil into their minds. It is too true, that there are masses of men who, for their own benefit as well as for that of the community, require to be kept under control by the strong hand of the law; and it is true, that there are many poor and forlorn, who stand much in need of some higher mental comfort and consolation than can be derived from a mere rational contemplation of their own surroundings. Society, therefore, requires laws and institutions; but in the lowest depths of Society, there is latent power, and an ever-increasing capacity for the perception of truth; and laws, to be permanently bene-

ficial, must be radically just, not only in their inception, but in their development also; and mental consolations, in order that they may comfort the individual without unwholesomely agitating the community, must not only be founded on ideas which are simple and true, but the institutions through which they are upheld and propagated must be in harmony with the simplicity and truth of the ideas upon which they are founded.

Laws and religions spring from simple germs, and they grow, in one sense, as naturally as trees; but the conditions of their growth are infinitely more complex. They are psychical phenomena, subject in their expansion to the ever varying phases of human thought, and the result is more frequently a transient abortion than a permanent structure. Even those which are most permanent exhibit symptoms of internal disruption, which are the sure indications of ultimate decay. Systems of religion are longer lived than systems of government; but any system of religion, if based upon an illusion, though it may endure thousands of years, must surely one day fall.

The decadence of governments and institutions does not involve the decadence of the people amongst whom they had been established. Man springs up with a bound when the foot of oppression is removed from his neck, the errors of the past are sunlight to the future, and corrupt institutions, like rotten manure, become useful nutriment when once fairly trodden into the ground. Yet, although this may be so, and although mankind in general may be progressing towards greater

enlightenment and greater happiness, it is not to be forgotten that the path of progress is strewn by many obstacles, and the foot of the onward traveller is liable to be penetrated by many thorns.

If, even in our own day, a man attempt to abolish restrictions upon trade, to amend the law, or to simplify the processes of the courts, he is confronted by vested interests and fixed ideas, firm as rocks, requiring almost superhuman strength and agility, and the most indomitable perseverance, either to climb over or to get round the corners of them. If a man of great learning, with a truthful and patriotic mind, attempt to purify our religion from certain superstitious excrescences, he is met, not with candid investigation, nor even with kindly reproof; he is vexed by persecution, he is goaded by the anathemas of convocation, and howled at by a crowd of angry priests, who, unable to oust him from his dignities in this world, console themselves by remanding him to hot perdition in the next. If a man agitate for the education of the multitude; although every one may be ready to admit that the people ought to be educated, yet the wall between total ignorance, and the partial enlightenment of reading, writing and arithmetic, so bristles with the armoury of conscientious scruples that the disappointed agitator finds himself in the position in which Sampson would have been, when confronting the Philistines, if the Philistines had forstalled him in the possession of the weapon with which he slew them.

In view of such events occurring in our own most enlightened times, the mind of a disinterested spectator

might very naturally arrive at either one of two conclusions. First, that the minds of our rulers were not actuated by a pure and simple desire for the development of justice and truth; or, second, that their minds were incapable of discovering either a basis upon which their ideas of truth and justice might rest, or a law according to which true ideas might be developed into harmonious institutions. But it does not logically follow from the facts that either of these conclusions is true.

Although man has a reasoning faculty, he is not purely and simply a rational being. His psychical organ is but a part of a complex system, every function of which is continually pressing its necessities upon his attention, and he himself is but an atom revolving amongst a multitude of other atoms, with whose motions his nature necessitates him in some sort to harmonize his own; and that which he calls his mind or his opinion is subject to innumerable other influences than those of pure reason; so much so that in relation to some most important subjects, many men have no greater control over the complexion of their ideas than they have over the length of their limbs, or the colour of their hair; the mind receiving its notions as passively as the tree receives its nutriment from the ground. And a man of the highest education may conscientiously believe a law to be just, or a religious dogma to be true, although there may be neither justice in the one nor any shadow of truth in the other. What a man conscientiously believes to be just and true, he feels himself bound manfully to support; and we may thus perceive how

unjust laws and superstitious observances may be prolonged from generation to generation. In accounting for this it is not necessary to assume either that man has no faculty for the discovery of truth or that he is naturally disinclined to embrace it when brought home to his perception. The possession of the faculty is not doubted, and the tenacity with which the human mind adheres to what it believes to be true proves an inherent love of truth.

But although the love of the true, the just, and the beautiful, is strongly developed in early stages of human progress, the mental vision by which the mind discovers truth is very feeble in its first efforts, and in the most advanced stages yet reached, its achievements appear more like the opening buds of early spring than the flowers of summer; and the autumnal harvest can only be perceived by the imagination, dimly, as through a long vista of ages yet to come.

This development of mental vision is continually retarded by the external obstructions which, in the form of passion, prejudice, interests, and brute forces, suppress its growth; by the indolence or inertia which renders it more agreeable to the mind to adhere to that which it has been taught to accept as true, than to investigate the grounds of its belief; and by that mixture of timidity and generous social feeling, which naturally renders a man reluctant to confess a doubt in relation to ideas or dogmas, the acceptance of which is held to be the leading bond of social harmony between himself and those nearest and most dear to him in his social relations.

Some delusion or false idea lies at the foundation of every disturbing element of social and political harmony. To attain a true policy, and a true religion, we require a true perception of the facts upon which existing ideas and institutions have been founded, and of the facts, principles, and modes of thought, by which their development has been controlled.

The attainment of such perceptions requires a mind, or many minds, free to analyze, without passion or prejudice, all that is accepted as truth;—without favour or affection to trace back our most cherished, and even our most sacred, institutions to the ideas or facts upon which they are founded;—to determine whether those ideas or supposed facts are true;—and if true, to investigate whether or not the institutions themselves are consistent and harmonious developments of the truths upon which they profess to be founded. This may be termed a cool and heartless operation, taking no note of those passions, feelings, and emotions which vitalize society, and form the spice and condiments of human life; but it is not so. The mind, to be competent to such an undertaking, must have the feelings of other men, and must have a practical sympathy with every emotion of the human heart; it should be able not only to detect the weaknesses and the baser passions by which human nature is led astray, and through the operation of which human institutions become corrupted, but also to duly estimate the noble and generous aspirations by which it is inclined towards goodness and truth. If all that is defective in human institutions

originated in something bad in human nature, or something wilfully wrong in human reasoning, the evil motive might be detected, or the sophistry of the reasoning might be demonstrated, and the institution might be peacefully amended; but reason is blinded by feeling; and men, through a loving sympathy with that which they believe to be great and good, or sacred and true, will rally round their leaders in defence of the most corrupt institutions; or rush on in pursuit of some phantom of glory or goodness, like ants into a ditch, until the bodies of perishing thousands constitute a bridge by which the remainder can cross over, too often only to find vanity and vexation of spirit on the other side. But still the ditch is crossed, and still the surviving crowd rushes onward, to what fresh fields and pastures new "they know not, neither can they tell."

CHAPTER V.

THE human mind does not arrive at truth by the contemplation of great phenomena. Man might have gazed at the stars, or might have studied thunder and lightning, from the beginning to the end of time, without arriving at any certainty of knowledge respecting either. It was the law of gravitation, as exhibited in the fall of an apple or a stone, which supplied the key to celestial phenomena; and the attraction of straws by an excited piece of amber was the trivial fact, a study of which led, in the course of some thousands of years, to an explanation of one of the most awful of terrestrial phenomena, and shewed that exceptional phenomenon to result from the operation of a great physical force silently and continuously operating through all nature.

All science is based upon a knowledge of the laws of nature; it is only through a knowledge of those laws that we can truly explain or clearly comprehend any phenomenon; and a knowledge of those laws has been attained by a study of facts, generally trivial and unimportant in themselves—often, like the attractive force of amber, apparently exceptional to the ordinary course of nature, and far distant from the phenomena of which they ultimately afford an explanation.

We thus find in the physical sciences a body of knowledge in which a study of trivial facts leads to an explanation of great phenomena ; and the investigation of apparently exceptional properties leads us to a knowledge of all-pervading forces, or general laws of nature.

If we wish to obtain a similar kind of knowledge respecting psychical phenomena, we can have no better methods by which our reason can attain such knowledge than those which have proved effective in leading us to a knowledge of the physical forces of nature ; and we ought not to despise nor to neglect the study of any facts, however trivial, or however exceptional to the general order of psychical phenomena ; for it must be through such study that true knowledge on the subject will ultimately be obtained, if ever it be attained.

In working the electric telegraph, it sometimes occurs that the wires lose their normal, placid, conductive state. Instead of simply transmitting the electric current in the ordinary manner, they appear to be affected with an agitation of their own. The signal sounds, the index moves, and the apparatus appears to be doing a little business on its own account, while the operator sits confounded before his instrument, unable to transmit a message. This, at first, appeared to be an extraordinary, unaccountable, and almost supernatural phenomenon. It seemed as if some mischievous sprite were playing his pranks with the apparatus. The investigations consequent upon these disturbances revealed the fact, that the wires were liable to be affected by other electric currents than those of the battery with

which they were connected, and that the rocky crust of the earth is pervaded by electric currents and magnetic storms almost as fitfully as the wind blows over its surface.

Man possesses an organ the function of which is the reception and evolution of ideas. In his waking hours he is conscious of, and has a certain amount of control over, the working of this apparatus. In sleep it is sometimes brought, by physical conditions of his body or otherwise, into a state of activity of which he is conscious, but over which he has no control. Even in the hours of conscious thought, ideation will sometimes rush in advance of perception and reason, and a man will find thoughts in his mind for which he cannot account, or will irresistibly be drawn to a conclusion contrary to that which he would arrive at by reasoning upon the facts within his knowledge.

Our object in this Chapter is not to dwell upon those various well-known causes—physical, mental, and social—by which the reasoning powers of man and his opinions are liable to be affected, but to suggest a possible origin of certain ideas which, although beyond the confines of reason, have had a greater force than any other in ruling the conduct and shaping the destinies of mankind.

The electric apparatus by means of which we send and receive intelligence, is liable to be affected by electric conditions external to itself, and independent of the operator;—Is it not equally possible that the psychical or ideative apparatus of man may be susceptible of being affected by psychical activity external to itself, and independent of all human agency?

We need not assume, in the all-pervading psychical power, changes of force, or local perturbations, equivalent to the magnetic storms which agitate telegraphic wires; but it may be that the human psychical apparatus is, in some of its conditions, susceptible of being affected by the psychical activity without, in a manner of which it is not at other times susceptible; that some men's minds may be more susceptible of these conditions than the minds of other men; and that ideas which never could have been attained through perception or reason, under ordinary conditions, may have thus become current among mankind.

That man has such ideas is undeniable. Ideas relating to what is termed the *supernatural* prevail amongst all the known races of mankind. Ideas of a world of spirits, of a future state, of the possibility of foretelling future events through supernatural indications, appear to have had their origin in the most primitive stages of human development, and still retain their most primitive simplicity amongst savage and semi-barbarous tribes. It seems almost as much a part of the nature of man to accept these ideas as it is to accept the evidence of his senses.

The systems, the doctrines, and the institutions which have been developed out of these ideas constitute the most important phenomena of human life, and if we are to obtain a true understanding of this subject by the same practical method through which we attain true knowledge in other subjects, we will not attain that knowledge by limiting our study to the highly

developed phenomena, the doctrines and institutions which now prevail in highly civilized countries. We must begin at the bottom of the phenomenal scale, and endeavour to trace our way upwards as from the tiny electric spark to the reverberating thunder.

The living book of nature is spread before our view like a system of mathematics in which the whole science is exhibited, from the first simple definitions to the most complex problems. Species may have become extinct, or problems may have been dropped out in the course of development, but the work is still complete, and no link is missing to break the continuity of the demonstration.

Animals have lived which may never live again; there have been convulsions of the earth's crust such as may never recur; but we cannot trace the fact, nor conceive it possible, that there has been a change in any law of nature, or that any phenomenon has ceased, the conditions necessary to the production of which remain extant. And if the psychical phenomena of human life be natural, a continuity of that creative development which produced material phenomena, we might anticipate, through analogy, that psychical phenomena may have occurred which may never occur again, but that no phenomena would cease to occur, the conditions necessary for the production of which remain extant.

We do not resort to the agency of supernatural influences to explain how mountains have emerged from the bowels of the earth, or how continents have been upheaved from the bottom of the sea; neither do we

require the interposition of any special supernatural agency to account for the moral or spiritual elevation of the inhabitants of the mountains and continents so upheaved. Inspiration and prophecy cannot be denied, but it may be possible that inspiration and prophecy may be believed in without a belief in any departure from the ordinary laws of nature. If we find it to be one of the phenomena of human life that the mind is susceptible of a condition in which it is forewarned of future events; then, the length of the prevision, whether it relates to events which are to occur in three days, or three years, or in a thousand years; and the extent of it, whether it relates to a simple fact or to the destinies of a people, are mere matters of degrees of force and intensity; the phenomena being identical in their nature.

In order to bring the power of prevision within the natural conditions of the human mind, it is not necessary to prove that the mind of every individual has that faculty, or that prevision is a normal phenomenon of human life. Steel is susceptible of becoming magnetic. By a blow with a hammer, while being held in a certain position,—by resting for a certain time in a certain position, and by other well known methods, any piece of steel may be rendered magnetic; yet of all the pieces of steel brought into existence, not one piece in ten thousand ever becomes magnetic. Something also depends upon the quality of the steel; both as to the facility with which it may be rendered magnetic, and the intensity of magnetic power which it has the capacity for receiving and retaining.

In like manner it may be a universal property of the human mind to be susceptible of receiving the power of prevision; but there may be conditions necessary to bring that faculty into operation. These conditions may occur only in a very limited number of cases; and the varied conditions of the human mind would lead to a great variety in the phenomena resulting. A man whose thoughts were, by the force of circumstances, concentrated upon his own affairs, might see little beyond that which concerned himself individually; another, whose heart was agonized by the miseries of his nation, and whose soul yearned for the delivery of his fellow countrymen, might read their destinies through future generations, and foretel their doom during centuries to come. In the one case, the man, estimating his power of prevision only as a disturbance of the normal condition of his mind, might wish to discourage rather than to promote the phenomenon; in the other case, the man's whole heart and soul being occupied by an intense desire to read the future, he would concentrate all his energies, and use every means in his power, if any means there be, by which the faculty of prevision might be intensified.

The magnetised bar of steel gives us a certain information. It indicates the pole, or the point towards which the magnetic current of the earth is tending. It does this, not of its own inherent force, but by the force of the magnetic current which is external to and independent of it; and of the motions of which it has become the passive index. The magnet, however,

though passive in one phase of its activity, has a force of its own in another phase. It has an inductive influence by which it can affect other pieces of steel or iron, and attract them to itself, and if plunged into a mass of iron filings will gather up a quantity of them in radiant curves about its poles.

The super-rational prevision of a coming event by a human mind is an indication of a point or fact towards which the general operation of the psychical power, external to that mind, is tending; and which, perforce of that general operation, will certainly come to pass. The mind must be in a certain condition to be susceptible of receiving this indication, and being in that condition, it is a passive recipient of the indication. The analogous phenomenon of gathering around itself multitudinous fragments of its own species may or may not be exhibited. The inductive influence may be feeble, or the conditions necessary to the development of its efficacy may not arise.

The indication of future events and of contemporaneous events occurring at a great distance, is no new thing. Alleged facts of this description are abundant, dating back as far as history gives us any record. We read of them in the Bible and other ancient records; and we read in the newspapers of our own day, every now and then, a statement of some fact of the kind, so circumstantially related, with names of persons and places, that we feel ourselves bound to believe it, if we can believe such phenomena to be possible.

Whether believed or disbelieved, these alleged facts attract but little investigation. By the superstitious they are looked upon as peculiar interpositions; and the learned and scientific look upon them as unintelligible freaks of nature, or curious coincidences, so difficult of explanation, so incapable of being made subservient to any practically useful purpose, and of so unfrequent occurrence, that it would be a waste of time to enter into any systematic study of them. There is this difficulty also that you cannot experiment upon the subject as you can in a matter of physical science. If a man's mind be not susceptible to the influence, it may be impossible for him to make it susceptible; or the process necessary to produce that effect may be such as few men would willingly undergo.

To interpret the great psychical phenomena of past ages, and to understand the psychical conditions now existing and controlling human development in various parts of the globe, we must base our investigations, as the geologist does, upon existing facts. By studying existing forces of nature, and by observing processes, many of which are so silently and slowly going on as to be unobserved by others, the scientific geologist deciphers those stupendous operations which have shaped the physical contour of the earth's surface. We must study its moral and social contour in the same fashion, depending upon natural laws now operating, and upon processes now going on, for a key to the past. And we must not discard, or think a fact unworthy of notice, because it is trivial, or of unfrequent occurrence, or

apparently destitute of any practical utility ; for such facts may prove to be the psyeal *electron* which may lead us on to an explanation of some of the heavy clouds which have darkened the social atmosphere, of flashes which have blinded multitudes, and of rolling thunders which have convulsed the nations of the earth.

We have referred to certain phenomena, prevision, etc., which, being inexplicable, are generally considered to be beyond the limits of the laws of nature. These phenomena are, for the most part, facts of individual personal experience, necessarily so, from their very nature. And being considered to be out of the ordinary course of nature, any man moving about among his fellowmen, taking his part in the ordinary business of life, and having duties to perform which require the possession of a healthy mind in a healthy body, naturally feels a reticence in making it known that he is subject of such phenomena. This reticence if it continue to prevail, must necessarily prove a hindrance to the investigation of the subject, and to the establishment of any conclusions which might be arrived at by the acceptance of the facts as the basis of further researches.

CHAPTER VI.

PERSONAL EXPERIENCES IN PREMONITORY DREAMS AND OTHER PSYCHEAL PHENO- MENA.

IF it had occurred to myself only two or three times that events had come to pass as they had been symbolically indicated to me in dreams, or if the events thus indicated had been such as it might naturally and reasonably have occurred to my mind to anticipate, I should have thought nothing of it ; but during the last twenty years I have habitually had premonitory dreams. Amidst continual vicissitudes, embracing, with occasional gleams of sunshine, a taste of nearly every kind of suffering which an honest man can endure in this world, no disaster has overtaken me, nor has any piece of unexpected good fortune fallen to my lot without being first indicated to me in one or more dreams.

How, or through what agency, the coming event is to be brought about is rarely shown to me. If something unfavourable be indicated, I labour in vain to avoid it ; if favourable, it generally comes in a way which I had no reason to anticipate. On one occasion, an event was indicated which I dreaded and abhorred more than death. For some months my whole energies were devoted to an avoidance of that catastrophe. I thought I had fully succeeded ; I felt myself safe and believed that the spell

of my dream had been broken. But the catastrophe came, simply through a solicitor whom I did not know nor had ever seen, neglecting to say three words to his clerk. My deliverance from my trouble was speedy, and it came through two persons who had appeared to me in my dream as helping me out of the pit into which I had fallen. On another occasion, when all was darkness before me, and my energies were failing me through positive despair, I had a dream indicating a speedy and happy deliverance. Often as my dreams had been realized, I could not believe in this one ; my mind could not perceive a ray of hope anywhere. Yet my dream was fulfilled within a few days, and in so unexpected a manner, that if an angel had come down from heaven, and taken me by the hand, it could not have been a much greater surprise to me.

Occupying a very humble position, and the exigencies of daily life having for many years past, absorbed nearly my whole time and attention, it is not surprising that my premonitory dreams should have been limited to small affairs, in which I was personally interested, and that consequently I should have nothing to relate which can be interesting otherwise than as trivial facts, which, in connection with other facts, may serve as a groundwork for the explanation of other and higher psychical phenomena. There is this difficulty also, that an intelligible narration of some of my most remarkable dreams would point too clearly to living men, some of whom are well known, and might be greatly annoyed by being recognised in connection with such revelations.

During the last three months I have had two premonitory dreams. One of these was (to me) remarkable, as being the only one through which I ever had a seasonable warning enabling me to avoid a danger.

I dreamt that, walking in the street, I perceived that I was about to meet a person whom it seemed to me I ought to avoid. In order to avoid him I began to cross over to the other side of the street. He also began to cross over, bearing towards me. A sensation of dread came over me, increasing as he came nearer, and when he arrived within two paces of me I seemed, for a moment, rooted to the ground in a state of agony. He then disappeared.

My dream gave me only a very dim perception of the personal appearance of the individual ; but just at the last instant I seemed particularly to notice the fact that his face was cleanly shaven all over. This dream awoke me an hour or more before my usual time, and in a state of great mental perturbation. I felt confident that some danger was impending ; but of what nature, or from what quarter I could not imagine. My mind wandered hither and thither, reviewing every circumstance of my position, without finding any ground for apprehension. I did not even remember that I knew any one with a face entirely destitute of hirsute appendages.

On arriving that morning at the place of my daily occupation, I found, amongst a number of letters which it was my duty to open, one addressed to myself, and marked "private." The writer of that letter was a man with a cleanly shaven face, but so casual an acquaintance that the thought of him had not occurred

to my mind. He had something very important to communicate, and he requested me to meet him. Knowing that he would come to me if I did not go to him, I met him at the time and place appointed. He was bringing out a great undertaking, authorised by a private Act of Parliament, under the auspices of a member of Parliament and other influential persons, aided by a practical man, who had been a government commissioner, and under whose management the affair could not possibly fail to succeed. If I would devote my time to the promotion of this undertaking he would give me a position in it with double the pay and not half the work attached to my existing position.

Some questions which I put were met, without hesitation, by most confident assertions ; others were adroitly fenced ; but, being forewarned by my dream, I pressed for exact and definite information ; and at length arrived at an opinion, which was shortly afterwards confirmed by facts, that to have accepted the tempting offer would have brought me, if not to ruin, at least into a very embarrassing position.

Sometimes my dreams have their fulfilment in one or two days ; sometimes in a few months ; and occasionally I have had premonitions of something which was to occur years afterwards.

One time, not being then in very prosperous circumstances, I dreamt that I was wandering in a wide field, over which there were thinly interspersed some ragged stooks of very poor looking corn. A young man wearing a brown overcoat came up to me. "This is a poor field," said he, "come with me, I will show you a better."

Leading me through a gate we passed along a lane at the head of another field, then through another gate into a third field, which was well covered with large stooks of excellent corn. There he left me and my dream ended. For weeks and months I anxiously looked for the bodily appearance of my conductor into the better field. Not that I sat still, idly waiting for him, but I had confidence that somehow he would turn up. At length something occurred which led me to hope that, although I had not seen my conductor, I might be entering upon the better field. Upon this I had another dream.

I was walking along a quay by the side of a broad water. There were two ships; one close to the quay, in which it seemed I was about to sail, and another anchored a short distance outside. The young man of my former dream appeared. "Are you," said I, "the captain of this vessel?" "No," said he, "I am not a captain, and I belong to the other ship." "Cannot I sail with you?" "No," he replied, "not this voyage. When you are wanted I will come and let you know." And with this dubious utterance my dream ended.

Nearly three years after the first of these two dreams, and when I had altogether ceased to think of them, I sat one day in my room, for want of better employment, scribbling something with the intention of sending it to a periodical. A card was brought me, with the intimation that the gentleman was waiting to see me. The card was an ordinary visiting card, with the name "Mr. J. P. T—" engraved upon it; and below, was

written in pencil, "from Mr. C—." I did not know the name of J. P. T—; neither did I know, even by repute, any living man of the name of C—.

My visitor enquired whether I was disengaged, and if I could at once undertake certain work. Being answered in the affirmative, he made an appointment for me to call upon Mr. C— the same evening. On rising to leave, he said, "I am not empowered to make terms, but it might facilitate matters if you would enable me to say what remuneration you expect for your services." Being anxious for employment, I named a very modest sum. "Oh dear!" he replied, "that will never do; I advise you to say so and so,"—naming three times the amount—"then, if there is any demur, you can, if you choose, come down a little." I saw Mr. C— and engaged to commence my work the next morning, without any thing being said about the terms of remuneration.

This was satisfactory, more particularly as I had only a week before had a dream, indicating that I was about to be engaged in business of that particular kind, and that my engagement would lead to something permanently advantageous;* but my mind was perplexed

* In this dream, which comprised three distinct scenes, several events were predicted, and subsequently came to pass in the order indicated; but a tedious detail of circumstances would be requisite to enable the reader to understand them. It gave me a brief epitome of my career during the next two years, and during that interval I had other premonitory dreams; one in particular, indicating a very unusual and unexpected occurrence in which I was not in any way personally interested, but which, through its effect upon the circumstances of another person, then almost a stranger to me, so controlled subsequent events as to lead me into the position which I now occupy.

respecting Mr. J. P. T— : his face, and even his dress, seemed familiar to me, and during our brief interview I was anxious to ask him where or on what business I had met him before ; but he had a vehicle waiting at the door, and his manner was that of one who had no time to spare for irrevelant conversation. I fell asleep that night in a vain endeavour to remember where I had seen him ; and in the morning the truth flashed across my mind. He was the young man who, in my dreams, had shewn me the better field, and who had promised to come and let me know when I was wanted.

The undertaking upon which I was thus engaged, was one of considerable magnitude and importance ; and although my work upon it was of a very subordinate character and temporary duration, it afforded an opportunity for the display of energy, promptitude and industry, which, in addition to being satisfactorily remunerated, attracted attention, led to other employment, and ultimately to my being offered the situation which I hold to this day.

I have not selected the above as being the most remarkable of my experiences in premonitory dreams, but because they can be related without the circumstantial details which would be necessary to render others intelligible. My premonitory dreams differ from the ordinary dreams, with which, like other persons, I am occasionally visited. They almost invariably occur in the morning, and I wake out of my dream with a distinct impression that there is a meaning in it. That meaning is generally easy of interpretation ; but I have

had dreams which I could not interpret, and have only been able to comprehend, when the events occurred which had been obscurely indicated. Sometimes, also, I have had confused dreams, in which it seemed as if my mind was striving after a prevision, and some indications were faintly given ; but there was either a want of power to bring out the picture, or a want of susceptibility to receive the impression clearly.

I may briefly instance some other psychical phenomena which I have experienced.

I am subject to occasional slight attacks of rheumatism. On one occasion I had an attack of that character, which, in the space of three weeks, laid hold of nearly every part of my system. This attack left me in a peculiar state. I was not what is conventionally termed nervous or irritable ; but my nervous system was in a condition which might be physiologically described as preternaturally irritable. While in this state, I was awoke up early one morning by three smart strokes against the door of my bed-room. The sound was like that of a switch or riding whip struck flat against the door. I instinctively called out, and, receiving no answer, I got up and opened the door. There was no one there. I listened attentively, but there was not a sound of any one moving ; indeed, it was too early for any one of my little household to be out of bed, and I well knew that there was no one in the house who would disturb me at that early hour, or attempt to play any kind of trick upon me. I concluded, therefore, that the sound was a mere fancy. Next morning, however, at the same early

hour, I was again aroused by similar sounds ; the knocks being louder and more rapid than before. To leap out of bed and open the door occupied me scarcely more than a second, but my agility was in vain. I crept softly down stairs, but only to convince myself that there was not a soul stirring in the house. There were a very few individuals in it, and in the dead silence prevailing none of them could have shut a door without my hearing it. Indeed, all investigation upon the point seemed superfluous. I felt it to be impossible that the knocks could have been given by any mortal hand. Getting into bed again, it occurred to my memory that when I was a very little boy, a poor woman came to my mother's house, crying bitterly. Her only child, a little boy about my own age, was dangerously ill. In the dead of night, while she was watching by his bed-side, there had come three knocks at the chamber door, "like three strokes with a willow wand." It was, she said, a sure token of death ; and she was about to lose her child. The little boy did die, and I saw his funeral within a week afterwards. This reminiscence was not calculated to arouse agreeable sensations. Although my pains had vanished, I was far from enjoying the full vigour of health ; and had it been otherwise, death is not always very particular ; "in the midst of life we are in death ;" he may come at any time, and in a way most distant from our anticipations. I was not prepared for death, however ; not that I was afraid to die, but, for certain reasons of my own, I was determined to live. I had a presentiment that I would live ; and I firmly resolved that

although all the spirits in "the vasty deep," or elsewhere, might call me, *I would not come*.

Upon that same day, as I sat writing, I heard my Christian name called, in a soft female voice, as if from some one standing on the stairs a little way below the door of my room. I looked out, but saw no one. Thinking that some female relative might have paid me a visit, I went down stairs. No one had called me : there was no one in the house whose voice corresponded with that which I had heard.

This incident somewhat disturbed my mind for a few minutes ; but I attributed it to one of those transmutations of a distant sound which the ear will sometimes effect, when its immediate surroundings are still and quiet.

Next morning I was again aroused by the three knocks ; and the same day, about the same time as on the day before, my Christian name was called by the same female voice. The sound was clear and distinct ; and I will not attempt to describe the sensation which overpowered me when the conviction flashed across my mind that it was the voice of a beloved sister who had died in early youth, many years before.

These sounds continued to haunt me almost daily ; but, gradually becoming more and more feeble, they entirely ceased in ten or twelve days.

I may remark, with regard to these phenomena, that so soon as I was able to analyse my sensations with an undisturbed mind, I discovered a difference between them and actual sounds. Although my ear located the

sound, and my mind at first instinctively attributed it to an external physical cause, yet there was something in the nature of the sensation itself—a distinction I cannot define in words—which led me to the conclusion that, however the phenomenon might be produced, it was not through the medium of any external physical cause.*

On another occasion my ear was subjected, nearly every morning during a whole month, to visitations of

* Describing phenomena arising out of derangement of health reminds me of something which occurred to me upon another occasion. One morning I was awake between two or three o'clock by a severe and peculiar pain. This pain kept me awake for upwards of three hours, when, without any cessation of it, I fell into a momentary slumber. I started out of this slumber with a feeling of dread so intense, that, although I had previously been scarcely able to move, I found myself sitting upright in bed. The idea upon my mind was that my life was in imminent danger; and that if I did not immediately apply a certain remedy I should die. Requesting the remedy in question to be prepared forthwith, I applied it perseveringly. The pain gradually abated and by noon it was altogether gone.

A few days after this I paid a visit to my mother, and during our conversation it suddenly occurred to me, I know not how, to enquire concerning a distant female relative whom I had never seen since I was a boy, and whose name I had not heard mentioned for many years.

"Oh!" said my mother, "she has been dead several years, and she died in a very remarkable way."

Upon this, my mother went on to say that the lady in question had been seized with an intense pain; describing precisely the pain with which I had been seized; that all the medical men of any note in S— and N—, (two large towns) had been called in, but they could afford her no relief. And from the moment of her seizure, she had no cessation of pain, nor a wink of sleep, till the fifth day, when she died of sheer exhaustion.

Upon my narrating how I had been similarly seized, and how I had been relieved, my mother, who was a very pious as well as a very good woman, reminded me of other occasions when my life had been saved in a manner little short of miraculous, and entered upon the subject of special providences, ending with a hope that my life had been spared for some good and useful purpose.

a different character. Sometimes it was like a sudden gust of wind whistling through the rigging of a ship; sometimes it was like a wave dashing furiously against the sides of the vessel, my head seeming to be close inside the timbers; and ultimately it settled down into the semblance of a human voice, close to my ear, uttering "*who—ew*" in a kind of loud and sharp whisper. There was a seeming physical reality about these sounds which caused me involuntarily to put my hand to my ear, as any one would do on hearing a screeching, discordant noise; and although I knew there could be no one near me to utter the sound, I more than once got up to examine the fastening of the door, and to look through every corner of the room. I could read the meaning of these sounds. I knew what was coming, but I could not divine how or by what means it was coming.

I was then engaged, with others, in the promotion of an undertaking, having in view the accomplishment of a practical and useful purpose, a considerable portion of which has since been carried out with great success. This enterprise I felt sure was about to break down; but I could not relate my prognostications to those concerned with me in it; and I was unable to produce any reasons upon which to advise the abandonment of it. At length my prognostics culminated in a dream. I dreamt that several of the parties concerned along with me were met together at the entrance to an old castle. It seemed to be known to us that there was a chest of valuable treasure shut up in a room at the top of this castle, and our object was to obtain possession of that

treasure. The ascent to the top of the castle was by a circular flight of stone steps. These steps being much dilapidated, our ascent was not accomplished without considerable difficulty. At length we reached a landing at the top of the stairs ; but in the place where the door of the treasure chamber ought to have been, there was a huge mass of black impenetrable rock. We looked at each other in dismay, and strongly censured the engineer, who was not present, but who ought to have been present, and to have provided against this difficulty. In a few days after this dream it came to light that the engineer had neglected a very simple, but a very important item of the instructions given to him ; and through that neglect our project fell to the ground.

Amongst the alleged facts of a "supernatural" character, many instances are recorded of persons who have met with a sudden or violent death, appearing about the same time to other persons at a considerable distance, generally to a near relative, or some one between whom and the dying person there has been a strong attachment.

I never had any personal experience of this phenomenon ; but two instances have been related to me by persons, the truth of whose testimony it is impossible for me to doubt. I will give one instance.

In my youth I was on friendly terms with a lady, my senior by seven years, who kept a young ladies' school in my native town. Her father had once been a wealthy man, but misfortunes overtaking him, she had been compelled to provide for herself. Her brother was well known

amongst geologists, in connection with the study of fossil remains, and she had studied geology and botany.

It so happened that I became one of her most intimate acquaintances. One evening I found her very much depressed in spirits, and she had evidently been weeping. She told me how, a nephew of hers being left motherless in his infancy, she had acted the part of a mother to him. She had taught him his letters, and had assisted him with his lessons when he went to school. She had comforted him in his little troubles, and had advised him in his little difficulties ; and when he went to the University he corresponded with her in all the confidence and affection which a son could shew to a mother. She had that day received a letter informing her of his death.

After expressing my sympathy with her in her trouble, I was about to leave, but she requested me to remain. She had something upon her mind which she must speak about to some one, and there was no friend at hand to whom she would dare to divulge it except myself. After pledging me not to name what she was about to relate to any of our mutual acquaintances, she informed me that a few days previously, having taken a long walk with some of her older pupils, she had returned home fatigued, and having promised to spend the evening with a family in the town, she wished for a little repose. Locking the bedroom door, she laid down upon the bed, outside the bed clothes. Whether or not she might have first dropped into a slumber she did not know, but something attracting her attention, she raised

her head and saw three youths, one of whom was her nephew, sitting before the fire. They were partly undressed, very pale, and appeared to be wet and cold. Greatly shocked, her first impulse was to adjust her dress, and to get off the bed. Withdrawing her eye a moment for that purpose, when she looked again the figures had vanished. The letter which she had received informed her that a boat, in which her nephew was rowing, had been upset, and that he and two of his fellow students had been drowned ; and the fatal event had occurred just about the time when she saw the apparition.

Upon my suggesting that this might have only been a dream, she replied, that it would be a great relief to her mind if she could think so, but she was quite certain it was not. She was not quite clear as to what first attracted her attention, and caused her to raise her head from the pillow, but she was perfectly satisfied that when she did raise her head, and saw the three figures, she was as fully awake as at any moment of her life.

It seems possible that certain conditions of the brain or nervous system may have the peculiar effect of apparently bringing the individual into communication with the spirits of the dead.

When about fourteen years of age, I was one day bathing in company with a number of my schoolfellows. For some distance, the pool in which we were bathing was of a safe depth ; but beyond that it suddenly became much deeper. I was at the time learning to swim, but had not yet gained the confidence which is necessary to

success. Striking out, I carried myself into deep water. Entirely unconscious that I had done so, or that I was in any danger, I seemed to be swimming away beautifully. Suddenly I found myself at a great distance from the earth, floating, in an upright position, in the air. I seemed to be in almost utter darkness, yet conscious that numerous shadowy figures were floating around me. Then, for a second or two, I found myself again swimming in the water, and the next instant I was again in the air. This time there was a little more light, and I could distinctly perceive numerous shades moving about. Again I was in the water, and again in the air ; and this, the third time, there was a clear light. I seemed conscious that I was in the world of spirits. It was not at all like either of the two places I had been taught to believe in ; and the question suggested itself to my mind whether I was in the right place, along with Moses and the prophets ? No sooner did I think of Moses and the prophets, than shades, which seemed to be theirs, appeared before me. I did not feel inclined to enter into conversation with them, but thought I should like to find my father. My father's shade instantly approached me, but before we could enter into conversation my vision was dissipated. It seemed as if my spirit shot down from the clouds to the earth with such velocity that it appeared like a long streak of vapour ; and I found myself being dragged out of the water by my companions. I had been observed to rise to the surface three times, and on the third time they laid hold of me.

The two breaks in my vision were, no doubt, caused

by my rising to the surface and catching a breath of air. The increasing light was the increasing pressure, or congestion of blood on the brain ; and the rapid flight from heaven and earth was the sharp breath which I drew on my head being raised permanently out of the water.

I have conversed with other persons who have been recovered from a drowning state. One remembered nothing but the bodily pains of resuscitation ; another said his head appeared to be a flood of light ; and a third described it as being " exactly like the Day of Judgment ;" every thing that he had done in his life flashing through his mind instantaneously.

Many years ago I was acquainted with a lady afflicted with a fatal disease, so painful that she rarely had any sleep except that produced by medicines. Laudanum having ceased to produce any effect except in doses larger than her medical attendant thought it prudent to allow, he decided on trying the extract of Indian hemp, which was then rising in repute. The pill which he prescribed as a dose not appearing to produce any decided effect, she took another. Upon this, she fell into a kind of trance, being conscious and free from pain, with a peculiar buoyant sensation, but unable to move. From that state she passed into a dream, in which she found herself in a most beautiful garden, where many spirits of departed persons were walking about ; and amongst others she met with that of her own mother. They appeared to have a long conversation in the course of which the spirit related facts throwing a light on

certain family circumstances which had appeared very mysterious, and also revealed several future events which were to occur in the family.

I never could obtain any account of these revelations, the conversation being always purposely interrupted whenever I recurred to the subject; but many years afterwards, when misfortunes came upon members of the family, I several times heard the remarks, "*It's all coming true,*" and "*It's all come true, just as was told poor Sarah in her dream.*"

On relating the above to a Church of England missionary who had travelled in various parts of the globe, and who had some knowledge of medicine, he informed me that the drug in question, taken internally or applied externally in the form of an ointment, was reputed to have the effect of throwing some persons into a trance in which they appeared to converse with the spirits of the dead, and to have future events revealed to them. He so far believed it as to have tried the experiment upon himself; but either through not being amenable to the influence, or through not venturing to take a sufficient quantity, it had not produced the reputed effect.

If we can accept the recorded instances of them, phenomena similar to those above described have occurred to many persons, in every age of the world's history. The custom is either to repudiate the testimony, or to attribute the phenomena to some kind of hallucination or delusion.

All mankind, from the very activity of the psychical power within them, are subject to delusions in relation

to facts which do not admit of a rational explanation ; but these delusions do not relate so much to the occurrence of facts as to the causes of the facts, and the inferences drawn from them.

When a man distinctly and repeatedly hears certain sounds, there can be no delusion as to the fact of his hearing these sounds ; but if he fancies that it is the angel of death knocking at his door, or the voice of a deceased relative in gentle accents calling him to heaven, he may be under a delusion ; the natural and almost inevitable consequence of which would be a speedy obedience to the supposed summons. When a man repeatedly and habitually has premonitory dreams, it becomes impossible for him to doubt the fact of prevision ; but he may be under a delusion as to nature and causes of that phenomenon. Attributing it to the ministration of angels or other spirits, or to a special interposition of Divine power, the man might either sink into a pious imbecile ; or, the faculty being exalted by fasting and prayer, or the spiritual outflowing of the mind being intensified, as in the case of Mahomet, by nervous derangement, he might become a great prophet and the founder of a new religion.

Prophets and persons assuming to have received special communications from the Deity have been the founders of all organised systems of religion. Civil governments, and the moral and social regulations of society avowedly rest upon a similar foundation. Under the name of God or the great Spirit, nearly every people on the face of the earth acknowledges the existence of a great power in some mysterious manner, pervading,

moving, and controlling all creation ; and it is only natural that men who are believed to be inspired by, or to have received direct communication from God or the great Spirit should have a powerful influence over the thoughts and destinies of their fellow men.

It cannot be denied that great prophets have lived ; nor that they have upheaved the moral strata, and roughly formed the contour of ideas upon which the existing religious, political, and social aspects of humanity have been developed. There is no delusion as to the facts, but we may be under a delusion as to the nature of the facts, and the inferences we draw from some of them.

Nearly the whole of the inhabitants of the world are comprised under five religions, each of which is considered by its followers to have had a supernatural origin, all the rest being impostures or idle superstitions. It may be that none of them have had a supernatural origin, and that the existing condition of all is more or less superstitious; all of them, and the Christian not less than others, having widely departed, both in doctrines and in practice, from the utterances of their original founders.

Before we can justly assume any phenomenon to be supernatural we must be fully assured that it is absolutely beyond the limits of that which we term natural; that it differs, not merely in degree of force or intensity, but *in toto*, in kind and in quality; from any known or possible natural phenomenon ; and the occurrence of any phenomenon in the natural course of events is *prima*

facie evidence that it is a natural phenomenon, however mysterious or inexplicable it may appear to be. Thunder and lightning, eclipses, the appearance of comets, and various other phenomena were supposed to be supernatural until they were better understood. Epileptic and other diseases were attributed to devils or witches, and were supposed to be curable only by supernatural agencies.

We must apply the same reasoning to psychic as to physical phenomena. If pre-visions and other equally remarkable phenomena occur to myself and to many others in the natural course of our lives, upon what grounds are we to assume that such phenomena are other than natural? And if such phenomena be natural, even in their smallest and most insignificant developments, we have no logical grounds for assuming that they are other than natural in their most gigantic developments. The same power which reveals little facts or little truths to some minds, may have revealed, and may yet reveal greater facts and greater truths to greater or more intensely excited minds. And it is within the reach of the human intellect that psychic phenomena, now mysterious and inexplicable, may one day be as intelligibly comprehended, and as clearly brought within the limits of natural science, as the physical facts which our forefathers attributed to supernatural causes.

It is not the intention of the present writer to attempt an explanation of these phenomena. Being unable to explain how the all-pervading psychic power creates and

controls the invisible and impalpable atoms of matter out of which all visible and tangible things are produced, he does not pretend to explain how the same power operates upon the mind of man in the production of phenomena termed spiritual* or supernatural; but his belief is that it does so operate; that the great spiritual phenomena which have shaped the religious and moral contour of the world, are as truly natural phenomena as the upheaving of alpine rocks and the emergence of continents from the bottom of the sea; and that if we are ever to arrive at any firm foundation for a true social science, it must be by studying religion and morality upon the same basis of facts and natural laws which has led to the perception of truth in the physical sciences.

Such is the basis upon which a continuation of this essay will be attempted whenever time and opportunity may serve. It is not much that any one man can do towards the solution of problems so intricate as those involved in this study, more especially one who is every working day and all day long occupied with other matters; but it is a consolation to know that other men of more powerful intellect, more abundant leisure, and richer resources of learning are occupied upon studies bearing in the same direction.

END OF PART I.

* In using this word the author begs to state that he has no personal acquaintance with any of the people called spiritualists; that he has not read any of their books; nor ever attended a spiritual *seance*. He takes no credit nor discredit to himself on that account; his abstinence arising more from want of opportunity than want of will.

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